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ABSTRACT

This paper reviews five prominent approaches to U.S. high school reform: small schools, applied learning, professional development/curriculum and instruction, youth development, and comprehensive/whole school reform. For each strategy, it offers: a description and "theory of action" of the reform approach; some examples of the reform in practice; and a brief review of recent research. The literature review suggests that there is a diverse range of reform strategies being implemented in the nation's high schools, many of them meeting with some success. There reforms overlap in important ways. The review confirms that there is no "silver bullet," and that to bring about meaningful change, many interrelated aspects of schooling must be addressed. Research corroborates the finding that the policy environment, the local district in particular, figures significantly into any attempt at school change. Structural features common to U.S. high schools appear to present particular impediments to change attempts. The paper includes an annotated bibliography and a separate appendix for each section. The appendices list key organizations and individuals associated with each reform strategy and some of the references that were particularly useful in the literature review. A table provides an overview of the reform strategies described. The table focuses on the theory of action, intended outcomes, and evidence for each approach. (SM)

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REVIEW OF SELECTED HIGH SCHOOL REFORM STRATEGIES

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EXECUTIVE SUMMARY

High Schools: The More Things Change...

High schools are a paradox of educational reform. While they are often criticized for never changing, the history of the institution shows that they have indeed changed significantly over the past century. What were once add-ons to one-room schoolhouses are now the large, imposing fortresses or sprawling campuses familiar to us today. Even with such changes, the institution has not kept pace with America's changing economy and demography, particularly in the post-World War II years.

The publication of *Nation at Risk* in 1983 was followed by an upsurge of interest in high school reform. A number of studies, most notably A Study of High Schools (which spawned three groundbreaking books on the high school: *Horace's Compromise, The Shopping Mall High School,* and *The Last Little Citadel)* diagnosed the problems of the institution in vivid detail, and launched some important initiatives to change it.

Now, almost two decades later, there is a resurgence of interest in high school reform. Economic and demographic shifts have accelerated in recent years. American society is increasingly information-driven and globally-oriented, yet by and large we are not preparing high school graduates to succeed in such a world.

Describing the Reform Landscape: The Purpose of this Paper

A vast array of individuals and organizations has responded to the pressing need for high school change. Schools and universities, foundations, federal, state, and city governments, business and industry, teacher's unions, policy think tanks, and community-based organizations have all joined in the conversation on high school reform.

The purpose of this paper is to provide an overview of some of the most prominent approaches to high school reform. Although there are a multitude of strategies currently in use, we identified five broad approaches on which to focus:

- Small Schools
- Applied Learning
- Professional Development/Curriculum & Instruction
- Youth Development
- Comprehensive/Whole School Reform

These approaches capture the wide range of high school reform strategies being implemented nationwide, and all have some descriptive and/or empirical data from which we could draw.

In this paper, then, we will review the five strategies listed above. For each, we provide: a description and "theory of action" of the reform approach; some examples of the reform in practice; and a brief review of recent research. We have also included an annotated bibliography and a separate appendix for each section. The appendices list some of the key organizations and individuals associated with each reform strategy and some of the references we found particularly useful in our review of the literature.

In addition, we have included the table on the following pages to provide an overview of the reform strategies described in this report:

Table 1: Overview of Selected High School Reform Strategies

STRATEGY	THEORY OF ACTION	INTENDED OUTCOMES	EVIDENCE
Small Schools	Decreasing school size and scope leads to more personalized teacher-student relationships and reduced feelings of anonymity. When teachers know their students, they are better able to engage in student-centered teaching practices. When students feel known in their schools, they are more connected and engaged in their learning, and their achievement is likely to improve.	▪ Improved academic performance, particularly for lower-income and minority students ▪ Increased personalization/more supportive school environment ▪ Better working conditions for teachers	▪ General empirical consensus that smaller school size is correlated with improved student achievement and school climate ▪ Lack of agreement as to ideal high school size ▪ Research base on costs vs. benefits growing; initial studies indicate that given improved outcomes, small schools are worth the investment
Applied Learning	Through an integrated academic and vocational curriculum, applied learning provides students with "hands-on," relevant learning experiences, which lead to increased student engagement and achievement. Furthermore, by exposing all students to this integrated curriculum, applied learning provides students with more equitable opportunities to succeed in today's global economy.	▪ Improved academic performance ▪ Increase student engagement/motivation by connecting learning to the world of work ▪ Increased awareness of careers and necessary occupational skills ▪ Bridging career and academic tracks allows students access to either meaningful work or college	▪ Mostly implementation data, but some evidence of improved attendance, grades, graduation rates, school climates, career planning and preparation ▪ Link between applied learning and performance on standardized test scores unclear ▪ Conflicting evidence as to which student populations benefit most from applied learning
PD/C&I	Focusing reform efforts on the core of educational practice – pedagogy and curriculum – is the most effective means for improving student learning.	▪ Targeted professional development will build teacher capacity and improve instruction ▪ Preparing/requiring teachers to offer more challenging curriculum will improve student outcomes ▪ By upgrading curriculum and eliminating non-college prep/low track offerings, more students will have access to college	▪ Evidence mounting that teacher quality may be the strongest predictor of student performance ▪ New York City's District #2 provides an "existence proof" for professional development-based reform ▪ Limited knowledge of how this reform strategy will work in high schools

Table 1: Overview of Selected High School Reform Strategies *(continued)*

STRATEGY	THEORY OF ACTION	INTENDED OUTCOMES	EVIDENCE
Youth Development	Youth development concentrates on strengthening the institutions that affect youth as well as the connections between these institutions in order to provide more developmentally-appropriate environments focused on the "whole child." By providing young people with numerous, supported opportunities to develop the assets and competencies they need, they are more likely to experience success in the present *and* the future.	▪ Building youth capacity (e.g., self-esteem, health, career awareness, civic participation) ▪ Bringing increased coherence to the many sectors/organizations that serve youth ▪ Fostering youth's strengths to reduce engagement in high-risk behaviors (teenage pregnancy, drug and alcohol use, etc.)	▪ Until recently, the research base has been relatively weak due to the early stage of the field and lack of definitional consensus ▪ Outcomes and indicators are now better specified and defined, providing the framework for more rigorous study ▪ One meta-analysis of existing data suggests positive personal, social, and academic outcomes (Scales & Leffert, 1999)
Comprehensive/ Whole School Reform	Whole school reform rests on the belief that changing school cultures and aligning the effort of all involved in each school's educational enterprise can bring about high levels of achievement for all students. To avoid reinvention of the wheel or continued pursuit of incremental approaches, schools choose from a variety of pre-developed models and receive support from developers for initial adoption and ongoing implementation.	▪ Improved coherence of reform efforts ▪ Increased student achievement ▪ Reform that is research-based, well-specified, and sustainable as compared to other strategies	▪ Research base is fairly weak and consists mainly of implementation studies ▪ Knowledge about and experience with high school-level implementation particularly limited ▪ Difficult to generalize since Comprehensive/Whole School Reform includes a number of very different reform strategies

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Summary and Tentative Implications

What we have found in writing this paper is that there is a diverse range of reform strategies being implemented in the nation's high schools, many of them meeting with some success. Further, these reforms overlap in important ways: one approach, career academies for example, may blend several of the strategies described here: applied learning, small schools, and curricular reform. Our review of the literature confirms that there is no "silver bullet" and that to bring about meaningful school change, many interrelated aspects of schooling must be addressed. In addition, our research corroborates the finding that the policy environment, the local district in particular, figures significantly into any attempt at school change. Finally, as reported in nearly all research comparing high school reform to elementary level reform, the structural features common to America's high schools appear to present particular impediments to any attempts at change.

A Note on our Methods…

Clearly, many strategies for high school reform exist and much written about nearly all of them. In preparing this report, we conducted extensive searches of ERIC and the holdings of Stanford's Cubberley Education Library, visited countless websites, consulted with several colleagues (special thanks to Joan Talbert, Milbrey McLaughlin, Nina Bascia, Dana Mitra, Stacey Pelika, Sarah Gilbert, Amy Hightower, and Matt Kelemen), and drew upon our own research and writing about high schools. We did our best to be both concise and comprehensive; given the constraints of time and space, omissions are inevitable.

SMALL SCHOOLS

DESCRIPTION

As a reform movement, the idea of small schools has captured the attention of school reformers, researchers, federal and city policymakers, foundations, and other organizations across the country, particularly as an approach for downsizing large high schools (Fine & Somerville, 1998; Raywid, 1996). Yet the concept of a "small school" is by no means monolithic.

What is a small high school? There is no apparent consensus on an ideal size for a small high school. For example:

- Based on large-scale quantitative research on the topic, Lee and Smith (1997) propose that "the ideal high school, defined in terms of effectiveness (i.e., learning), enrolls between 600 and 900 students (p. 205)." They further assert that in schools much smaller than this target range, students learn less, and in schools much larger than the target range (e.g., over 2,000) students learn "considerably less," as judged by National Educational Longitudinal Study (NELS) performance data.
- In *Small Schools, Big Imaginations*, Michelle Fine cites the Chicago Small Schools Coalition recommendation of "preferably no more than 500 students in high schools (1998, p. 3)."
- Co-director of the Chicago Small Schools Workshop Michael Klonsky (1996) asserts that small schools for all ages should have a maximum population of 250-300 students.
- Deborah Meier suggests that small schools ought not be "too small," nor should they be "larger than a few hundred (1995, p. 117)."
- Finally, in *Breaking Ranks*, the National Association of Secondary School Principals advocated for high schools to limit their enrollments to "self operating units of no more than 600 students (1996, p. 46)."

So while a universal figure for small high school size does not exist, estimates range from about 300 to about 900, tending toward the smaller end of the continuum. R.M. Gladden, a researcher for the Consortium for Chicago School Research, urges educational reformers to worry less about the ideal school size and instead to "explore how smaller school size can be used to improve the educational opportunities offered to the diverse range of students attending our nation's public schools (2000, p. 26)."

How are small schools configured? There are a number of different approaches to creating small schools and each locale and organization seems to have its own terminology for its different types of small schools. Yet there appear to be three dominant types of small schools as described in the following table: freestanding, schools-within-a-building, and schools-within-a-school.[1]

[1] For more descriptions of different variations of small schools, see Raywid, 1996, pp. 21-25; Gladden, 2000, pp. 9-14, and Wasley et al., 2000, pp. 10-12.

Table 2: Three Common Types of Small Schools

TYPE	CHARACTERISTICS	AUTONOMY
Freestanding Small Schools	Have their own space, budget, and principal. Typically in a stand-alone building but may exist on a multi-school campus. These schools are recognized as independent units by the central office. May have charter status.	Fully autonomous
Schools-Within-a Building (SWB), such as New York's academies	These schools typically have their own themes and/or curricular focus. May be led by a teacher-director who reports to a building principal. Shares common spaces (such as cafeterias, auditoriums, athletic fields) with the "host" school which may or may not be fully configured into SWBs. Have their own staff and space but their budget is usually a part of the entire school's. Host school, not SWB, is recognized as the independent unit by the central office.	Semi-autonomous
School-Within-a-School (SWS), also known as houses and, in Philadelphia, Small Learning Communities (SLCs)	Schools-Within-Schools are typically subprograms of a larger school. They may be teacher-led, but are typically limited in their autonomy. They may have a designated theme and space but tend to be permeable (teachers may teach and students may take courses outside of the SWS). They are also more likely to be beholden to the host school's schedule and policies. The host school is typically not fully subdivided into smaller schools.	Limited autonomy

(Synthesized from multiple sources including Gladden, 2000; Wasley et al., 2000; Raywid, 1996; Fine, 1994)

These distinctions are not absolute, and nor do they capture all of the variations on the theme of small schools. Rather, they are intended to condense the range of types of small schools.

What are the essential components of a small school? As with school size, there are a variety of recommendations for what are the necessary features or components of a small school. A publication from the University of Illinois at Chicago's Small Schools Workshop outlines the following common features:

- A group of students and teachers that stay together for more than one year
- A cohesive group of teachers, small enough to sit around a table, that collaborate and discuss the needs of their students
- A coherent focus and philosophy of education, and a curriculum that is integrated and organized around that focus
- Full involvement of families in the school community
- Teachers and students self-select to be a part of that school

Other descriptions include optimal school sizes, recommendations for governance and degree of autonomy, the need for shared planning time for teachers, and comments on inclusive admissions policies and heterogeneous student populations (see Fine, 1994; Klonsky, 1996; Wasley, et al., 2000). Despite these differences, a common theme unites all definitions of small schools: reducing school size may be a necessary, but not sufficient means for school improvement (Lee, 2000; Wasley, 2000). As stated by Michelle Fine:

> Small may be a necessary condition for a nonselective high school to excel. Small is necessary if teachers are to have rich conversations with one another about practice, policy, inquiry, and student work. Small is necessary if students are to feel attached to each other and to faculty. Small is necessary if parents are to connect to faculty along lines other than, 'Your son/daughter is in trouble again (1998, p. 4).'

Thus, the expectation is not that "downsizing" schools alone will bring about improvement; rather, that smaller school size will create the conditions under which school improvement might occur.

THEORY OF ACTION

Why small schools? Three of the key rationales for creating small schools are as follows:

Personalization and shared accountability. Currently, the median high school size is about 1,200 (Lee & Smith, 1997), with approximately 40% of public secondary schools serving more than 900 students (Bryk et al., 1993). In schools of this size, anonymity is the rule. Teachers do not know other teachers, teachers do not know their students, and students do not know each other. With structural features such as subject-based departmentalization and tracks for students assumed to be destined for different pathways, such large schools do not foster the collegiality and collaboration that supports learning (Bransford et al., 1999). Small schools, however, have been shown to offer more communal environments in which alienation of teachers and students is reduced and engagement in school is enhanced (for reviews, see Raywid, 1996; Gladden, 1998; Lee, 2000). Further, studies of small schools have found that where teachers, students, administrators, and parents are known to each other, there is a heightened sense of shared accountability (Wasley et al., 2000; Meier, 1995; Fine, 1994).

Improved academic performance, particularly for lower income and minority populations. In their study of school size, Lee and Smith (1997) found that while high school size matters for all students, it matters most for students in schools with high minority enrollments and/or characterized by high proportions of low SES students. As their findings suggest, "large numbers of socially disadvantaged students attend high schools of a size where, in fact, students like them appear to learn the least (p. 215)." In their reviews of small schools literature, Gladden (1998) and Raywid (1996) also cite evidence to support this finding.

Better conditions for teachers. In an era where demand for teachers exceeds supply in many locations, particularly in urban areas, small school reform strategies have the potential to improve working conditions for teachers (Wasley et al., 2000; Gladden, 1998). Large schools are characterized by norms of privacy, high rates of teacher turnover, and substandard physical working conditions. Smaller schools have been shown to create the conditions necessary for improvements in school professional climates and teacher

satisfaction which matter for teaching at all grade levels (however, see McLaughlin & Talbert, 2001 for high school-specific research on this topic).

Therefore, a concise "theory of action" of small schools might read as follows: *Decreasing school size and scope leads to more personalized teacher-student relationships and reduced feelings of anonymity. When teachers know their students, they are better able to engage in student-centered teaching practices. When students feel known in their schools, they are more connected and engaged in their learning, and their achievement is likely to improve.*

EXAMPLES. The following are just a few examples of the different types of small schools. See the Appendix for more examples.

- **Freestanding Small Schools:** Perhaps the most well-known small high school is the Central Park East Secondary School, founded by Deborah Meier in 1985. As one of the five original Coalition schools, CPESS innovated with its small size (450 students in grades 7-12), graduation-by-exhibition, and commitment to developing relationships to support learning between and among students and staff (Meier, 1995).
- **Schools-Within-a-Building:** Led by former principal Betty Despenza-Green, The Chicago Vocational Career Academy has been restructured from a highly-tracked vocational school into eight mini-schools comprised of interdisciplinary teacher teams where hands-on learning and college-preparatory academics are blended (BayCES Small Schools Conference, 1/27/01).
- **Schools-Within-a-School:** Crossroads Charter (now Crossroads Small Learning Community) in Philadelphia's Simon Gratz High School provides an instructive example of the creation of a school-within-a-school. Once they were provided with a more personalized learning environment, the achievement of Gratz students in Crossroads improved, but they were criticized for "stealing" resources from the rest of the students, such as the school's lone chemistry teacher (Fine, 2000, p. 173).

REVIEW OF RECENT RESEARCH

Research on small schools encompasses a number of research traditions and methodologies: qualitative and quantitative; economic and sociological; single-city and multi-state, etc. Topics of research include optimal school size, costs, curriculum, achievement, and role of the district. This review will focus on research from the mid-1990's to the present.

School size: Costs and Social Climate. As mentioned above, no consensus exists as to optimal school size, which may be due in part to assumptions underlying different research approaches. Lee and Smith (1997) and Lee (2000) characterize the literature on school size as falling into two main strands: economic and sociological. From an economic perspective, arguments for increasing school size rely upon beliefs about economies of scale (the assumption that as a service is provided to more people, the average cost of providing the service will decrease). The sociological perspective on school size posits that as organizations increase in size, interpersonal connections become more bureaucratic and formal. Thus, economic or efficiency goals (which tend to support larger schools) and social goals (which support more personalized environments) may be at odds (Lee, 2000).

A 1992 report of the Public Education Association (PEA) challenged the "economies-of-scale" assumptions underlying large school size. Based on a review of prior research, the PEA study demonstrated *penalties* of scale associated with the largest high schools. Specifically, they found consistent support for a "U-shaped curve" in relation to school size: that the smallest schools and the largest schools experience dis-economies of scale, while high schools in the middle of the distribution experienced reduced per-student costs. These findings led the authors to advocate for a high school size of between 750 and 1200 students.

A more recent report on size and costs (Stiefel, Iatarola, Fruchter, & Berne, 1998) diverges from the economies of scale approach for examining school costs. While the authors found that smaller schools may be more expensive to operate per pupil per annum, two types of small schools (academic and articulated alternative) evidenced the lowest costs per graduate[2]. They attribute this finding to the lower dropout and higher on-time graduation rates demonstrated by these smaller schools. In subsequent research (Stiefel, Berne, Iatarola, & Fruchter, 2000), these authors found comparable costs between small academic and large high schools. Given the replicated finding that small schools address equity gaps, the authors suggest that small high schools may well be worth the investment.

From a sociological perspective, smaller schools are shown repeatedly to exhibit what Bryk and Driscoll (1988) call a "communal school organization." In a qualitative study of six large and small high schools in one state, Lee, Smerdon, Alfeld-Liro, and Brown (2000) find that members of small schools report "high levels of social support and caring (p. 164)." Yet they comment that there is still a lack of empirical evidence linking the more personalized climate to improved academic performance.

Wasley et al.'s study of small schools in Chicago (2000) confirms the findings of improved social climate. Based on both qualitative and quantitative indicators, the researchers found improved student engagement, increased teacher-student connections, teachers with higher expectations for their students, and an increased sense of student safety in smaller schools.

Findings related to student achievement. Three reviews of small school literature (Gladden, 2000; Lee, 2000; and Raywid, 1996) address the student achievement outcomes of small schools. Gladden examined research on three aspects of achievement: standardized test scores, equity of student achievement, and outcomes related to future attainment (progress toward graduation, pursuit of college or employment). Although not all the studies he reviewed point to improved achievement outcomes for small schools, he ultimately concludes that the relationship between size and outcome may be mediated by the changes in the social environment of schools that many studies did not directly examine. In regards to equity, Gladden cites consistent findings that smaller school size predicts higher academic achievement among minority and low-income students. Smaller school size also appears to have the potential to reduce achievement gaps between students of different racial or socioeconomic backgrounds. Lee and Smith (1997) find that students learn more in smaller schools (high schools ranging from 600-900 students), that learning is more equitably distributed in

[2] These two types of small schools (academic and "articulated alternative") are schools that enroll students at 9th grade and expect them to graduate in four years. The other, and more expensive, category of small schools is the "transfer alternative school" which "only enroll students who are transferring from other educational settings from which they may have dropped out or have been suspended (p. 7)." These "last chance" schools have persistently high dropout rates.

smaller schools, and that the effects of reduced school size on learning are strongest in schools with higher proportions of minority and low SES students.

Studies reviewed by Raywid also indicate improved school performance, although she mentions an implementation effect. Echoing Oxley and McCabe's work in New York (1990) and McMullan et al.'s work in Philadelphia (1994), Raywid concludes that students who experience a more fully implemented small school or school-within-a-school (e.g., they take more of their classes within their small school) outperform those with a less "closed" experience.

Overall, then, evidence continues to mount that small schools improve student achievement, although we are still learning the mechanisms by which that improvement occurs.

Policy context matters. Studies of small schools repeatedly point to the school district as an important contextual variable in the implementation and "scaling up" of small schools. In their study of Chicago, Wasley et al. (2000) find that small schools both "need and benefit from" the support of the central office, the school board, and actors outside of the formal system such as universities, businesses, community groups, and other support providers (p. 52). In regards to the district, Chicago's small schools had a "point person" at the central office who helped them with issues related to start-up and ongoing operation. This advocate helped the schools "negotiate the differences between their structure and the policies and procedures of the larger system (p. 53)." Small schools in Chicago also benefited from the public support of their CEO who openly embraced the small school concept. Even with such support, however, small schools in Chicago still found themselves in a policy system designed for larger schools. Some of the existing policies (for example, rules that kept lead teachers from being recognized as administrators) and new policies (such as the High School Redesign Initiative, with its mandated curriculum and mastery tests) were counter to what the small schools felt was necessary for their success (Wasley et al., 2000).

Bickel & Howley (2000) offer a slightly different take on the importance of the district. Based upon their study of schools with eighth grades (n=367) and schools with eleventh grades (n=298) in Georgia, they found that school size, district size, and SES interact in important and heretofore unexamined ways. They uncovered a consistent finding that larger schools in larger districts have the least favorable achievement outcomes, followed by large schools in small districts, and then small schools in large districts. Small schools in small districts predicted the best performance in all of their analyses. Although their study was confined to one state, the authors suspect that their findings may hold in other states given the consistency of findings on school size and performance. As with other quantitative studies on small schools (e.g., Lee and Smith, 1997) these findings leave open the question of what is happening differently in the smaller schools and districts to bring about improved outcomes.

The Philadelphia initiative to create smaller learning communities provides another example of the role of the "system." The Philadelphia Schools Collaborative, funded by the Pew Charitable Trusts, was what Richard Clark calls "an inside/outside agency (1994, p. 33)." Located in the district headquarters but funded by an external agency, the Collaborative may have had more freedom to act outside of bureaucratic constraints, but it also faced concerns over legitimacy. As Clark observed, "Central administrators continue to praise the work of the Collaborative while, by their actions, they show they are neither sure how their role should change nor clear whether the high school reform is an indication of a central change in district operations or just another in a long line of projects (p. 44)."

The approach to small school reform in Oakland may represent an attempt to engage many actors within and outside the "system" from the outset. In Oakland, a community organization comprised of many public school parents convened a New Small Schools working group to bring small schools to the city. Now, the core of the small schools initiative in Oakland consists of "a grassroots, community-based organizing group, an equity-based school reform organization, and a public school district (www.bayces.org)." In addition, the city's voters passed a $300 million dollar bond for the construction and remodeling of local schools and the superintendent appointed a cabinet-level Assistant Superintendent for School Reform. In their analysis of New York's Coalition Campus Schools project, Darling-Hammond et al. (2000) emphasize the need for *system*-level reform in order to support small school reform. Perhaps the Oakland example demonstrates an attempt to learn from this finding.

Another important "player" in small school reform is the union. In New York City, the UFT supported the revised teacher assignment procedures that the small schools requested (Darling-Hammond et al., 2000; Sherman, 2000), whereas in Philadelphia, the union was more resistant to the changes in hiring and placement some small learning communities wanted (Raywid, 1996; Zane, 1994). If, as mentioned above, a key feature of small schools is cohesive faculty sharing a similar educational philosophy, it seems that obtaining union support for atypical staffing arrangements may remain necessary.

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The question with small schools is not whether they are correlated with increased achievement, particularly for lower-income and minority students. That finding has been replicated in many studies over the past decade. Instead, the major challenge which seems to face small schools is whether reformers can garner the political and financial support to bring this strategy to scale.

APPLIED LEARNING

DESCRIPTION

What is applied learning? For much of the American public, the term "applied learning" has a negative connotation. As Allen, Hogan, & Steinberg explain, applied learning "has become synonymous with watered-down academics, offered to reluctant or resistant students as a substitute for the college preparatory curriculum (1998, p. 2)." Thus, vocational education, school-to-work, school-to-career, and the dozens of other applied learning strategies have historically been characterized as distinct and less challenging programs for non-college bound youth.

During the past decade, however, the federal government began to give applied learning strategies a facelift. The most significant change occurred in 1990 when the federal government mandated that vocational and academic programs be integrated. This was achieved primarily through amendments to the Carl D. Perkins Vocational Education Act of 1984. While the amendments did not specifically define program integration, in 1993, the National Center for Research in Vocational Education (NCRVE) established a definition based on the following four themes:

1. **Richer, better sequenced curricula** that enhance academic and generic skills needed by all workers.
2. **Facilitative** (rather than didactic) **instruction** that motivates students to learn and provides them with a practical and applied understanding of the world.
3. **Increased collaboration and coordination among academic and vocational teachers** to create a more unified schooling experience.
4. More attention to the skills and knowledge students need to **transition effectively from school to work and college** (Bodilly, Ramsey, Stasz, & Eden, 1993).

THEORY OF ACTION

Why applied learning? The federal government's decision to revamp applied learning so that it integrated rather than isolated in academic and vocational tracks is based on three major ideas.

- **Students need new and more advanced skills to succeed in today's economy.** The numerous reports that flooded the 1980's such as *Nation at Risk* and *America's Choice: High Skills or Low Wages!* focused national attention on the low skill level of America's youth. There was an increasing realization that for youth to succeed in a rapidly changing global economy they needed new and different skills, including job-specific skills as well as more transferable, generic skills (Bodilly et al., 1993). Applied learning strategies promised to provide these skills through involving *all* students in integrated curriculum that provided both academic and occupational skills and knowledge.

- **Students learn best when "learning is in context."** Since the early 1900's people such as John Dewey have been warning educators to beware of a false dichotomy between "head" and "hand" (Allen et al., 1998). Developments in the field of cognitive psychology during

the 1980's and 1990's began to reiterate and focus attention on Dewey's warning. Research findings demonstrated that students are more engaged and learn best when learning is relevant and "hands-on." Furthermore, research supported the idea that students would be more likely to develop skills if they were learning these skills in the context that they would use them (Hughes, Bailey, & Mechur, 2001). Applied learning strategies provide an opportunity for students to learn "in context" through the integration of academic and vocational curricula as well as through internships, part-time employment, and the variety of other "hands-on" activities that typically characterize applied learning.

- **Schools need to address equity gaps between vocational education and college preparatory students.** Applied learning strategies also attempt to address the issue of equity. An increasing amount of attention in recent years has been placed on the "achievement gap" that exists between students. High schools, in particular, have received increased criticism for tracking students into academic or vocational tracks and therefore limiting students' future career and education options (Bryk, 1988; Guiton, 1995). Because applied learning strategies integrate both academic and vocational education, they draw students from diverse backgrounds. As a result, applied learning strategies have the potential to bring students together that might not normally cross paths in a traditional, comprehensive high school. Also, by gaining exposure to new academic and occupational knowledge and skills, applied learning strategies strive to provide students with more pathways to follow after high school graduation.

Thus, a concise theory of action for applied learning might read as follows: *Through an integrated academic and vocational curriculum, applied learning provides students with "hands-on," relevant learning experiences, which lead to increased student engagement and achievement. Furthermore, by exposing all students to this integrated curriculum, applied learning provides students with more equitable opportunities to succeed in today's global economy.*

EXAMPLES

Applied learning encompasses a wide variety of strategies. Some of the most frequently employed strategies include job shadowing, work-site visits, part-time employment, and internships. These strategies, however, are often isolated and unconnected to the school's larger reform efforts. Thus, for the purposes of this review, we have focused our attention on several comprehensive applied learning strategies that strive to restructure or significantly redefine the work of participating high schools.

- **Technology-Focused Schools**: With recent advances in the Internet and computer technology, it is of little surprise that many schools have begun to focus their attention on providing students with increased technological skills and knowledge. Although redesigning a school to focus on technology is a relatively new phenomenon, several prominent examples exist. One example is High Tech High in San Diego, California. This tuition-free public charter school has redesigned the high school experience to engage students in high levels of math, engineering, and science. Another California high school – Oakland Technical High School – also has adopted a school-wide technology focus. One of the central goals of this public high school is to provide equitable, school-wide access to technology.

- **Blended Curricula**: This strategy attempts to raise the bar of existing vocational programs by integrating more rigorous academic skills and knowledge into the curriculum. High Schools That Work (HSTW) is a national model that utilizes this strategy. Created by the Southern Regional Education Board in 1987, High Schools That Work targets students who are not expected to attend college. The program seeks to raise the math, science, and reading skills of students through a blending of the traditional college-preparatory subjects with high-quality vocational and technical courses. At one participating school – Hoke County High School in North Carolina – teachers identified shared objectives across academic and vocational studies. They then created integrated learning projects that covered these objectives (Bottoms & Mikos, 1995).

- **Career Academies**: Career academies are one of the longest-standing and most prevalent high school reform strategies. This strategy organizes students into clusters around a career theme. The theme might be a specific occupation or encompass an entire profession such as healthcare or public service. The number of academies within a school may vary from as few as one to as many as seven or eight. Students usually apply to attend an academy in lieu of the traditional, comprehensive high school program. Curriculum is integrated to include both academic and occupational knowledge and skills and students typically engage in internships or part-time employment to enhance their classroom experiences. Two national models that employ this strategy are the Talent Development High School, developed by the Center on Research on the Education of Students Placed at Risk (CRESPAR) at Johns Hopkins University, and the New American High Schools sponsored by the U.S. Department of Education. Both of these models support organizing students into career clusters in order to provide them with the necessary academic and vocational skills. For example, one New American High School – the Chicago High School for Agricultural Science – designed a school in which agricultural science is a component of all areas of the curriculum. During the summer, students are required to participate in a full-time, supervised applied learning experience.

REVIEW OF RECENT RESEARCH

What is the state of research related to applied learning? Not only are applied learning strategies some of the most established high school reform strategies, but they also represent some of the most well-researched strategies. In particular, a great deal of research has been conducted around career academies. Much of the early research, however, focused more on implementation and compliance with legislation rather than the effect of applied learning on student outcomes (Bragg, 1998; Bragg & et al., 1994; Hershey, Silberberg, Haimson, Hudis, & Jackson, 1999). Early studies that did begin to assess the impact of academies and other applied learning strategies were hampered by another problem – poor research designs. Many of these studies did not establish a random sample and therefore could not isolate the effects of applied learning strategies from other reform efforts in the school (Visher, Teitelbaum, & Emanuel, 1999). Furthermore, without a random sample, it was impossible to control for selection biases into the academies.

Recently, however, a more reliable body of research focused on student outcomes has been emerging. The large amount of federal, state, and local dollars being spent on school-to-work strategies has created pressure to demonstrate whether the benefits of the strategy justify the costs. As a result, several important studies of student outcomes resulting from participation in school-to-work strategies have been conducted during the past decade. Although the findings should be considered preliminary, much of the evidence suggests that school-to-work strategies have a positive effect on students. What follows is a concise overview of the major findings and the key studies that support these findings.

School-to-work improves students' attendance, grades, and graduation rates. Beginning as early as the 1980's, studies showed that career academies were having a positive influence on high school students' grades and enrollment patterns. Some of the most significant early findings were those reported by Dayton, Stern, et al. (1990; 1992; 1997) in their evaluations of the California Partnership Academies. These studies compared the performance of career academy students with that of students at traditional high schools with similar demographics. The findings suggested that academy students had higher attendance rates, grade point averages (GPA's) and graduation rates than their peers in traditional schools. The studies also showed that academy students earned more credits than the comparison group (Dayton, 1997; Dayton & et al., 1992; Dayton & Stern, 1990).

Numerous other studies supported these findings. For example, in her evaluation of New York City's career magnet programs, Heebner (1995) found that career academies had lower dropout rates than the city's traditional, comprehensive high schools. Evaluations of Philadelphia's career academy program have yielded similar findings, demonstrating career academy participants had higher attendance and graduation rates than their peers at traditional, comprehensive schools (McMullen, 1987). Furthermore, according to state and national surveys, students who participated in school-to-work initiatives had grades similar to non-participants, even though the school-to-work students tended to take more challenging courses (Hughes et al., 2001).

The most recent research on the effect of career academies on student outcomes was conducted by Manpower Demonstration Research Corporation (MDRC). MDRC began an evaluation of the career academy approach in 1993. Their study of nine high schools and their career academies is noteworthy because it implements a large-scale, multi-site, random assignment research design. Through an analysis of school transcript records, student surveys, standardized tests, and interviews with participating teachers and students, the study corroborates earlier research that suggested a positive effect of career academies on student outcomes. The study found that the largest effect was among the students who were at high risk of school failure. For these students, participation in a career academy significantly reduced dropout rates and increased attendance rates, credits earned toward graduation, and preparation for post-secondary education (Kemple & Snipes, 2000).

School-to-work strategies enhance school climate and improve motivation. Studies have shown that applied learning strategies not only have a positive effect on traditional measures of student engagement such as attendance and GPA, but also on a school's more affective qualities. A study conducted by the National Center for Research in Vocational Education (NCRVE) found that career academy graduates had stronger positive feelings toward their school than their peers at traditional comprehensive high schools (Flaxman, Guerrero, & Gretchen, 1997). Academy students were also twice as likely as their comprehensive high school peers to indicate that they would choose the same high school again because of its career focus and reputation.

In addition to having a more positive attitude toward their schools, career academy students often have more positive images of themselves. For example, the NCRVE study also found that career academy students cut class less frequently than their peers and are less likely to have been in a fight, to use drugs or drink alcohol, to be pregnant, to make someone pregnant, or to be arrested by the police on serious charges. Studies by Crain et al. (1997) supported these findings.

Heebner et al. (1992) suggested that more personalized attention as well as new peer groups influenced students' images of themselves as well the school climate. Career academies typically place students in new, more diverse peer groups. Students find themselves surrounded by others who have similar career aspirations. This new peer group often serves as a positive influence on students' values and work ethics (Heebner & et al., 1992).

School-to-work positively affects student's career planning and preparation. Kemple, et al. (1999) found that students participating in career academies were involved in career awareness and work based learning activities at equal or higher rates than non-academy seniors across the nation (Kemple, Poglinco, & Snipes, 1999). Other evaluations found that as a result of this participation career academy students are more likely than their non-academy attending peers to have thought about and taken clear action toward executing career and post-secondary education plans (Crain et al., 1999; Kemple & Snipes, 2000).

One surprising finding in this area has been around "parallel career planning" (Heebner & et al., 1992). Much of the early evidence about school-to-work suggested that a "cooling down" takes place in school-to-work programs where students are eager to use their practical skills and thus forsake college education for immediate employment. However, Bragg (1998) says that what is really happening is not a "cooling down" but rather a "warming up" where students are beginning to consider several – or parallel – career/education options. In fact, Bragg and others have found that low-income and minority students who might not have even considered college before for financial reasons are now doing so and see their practical skills as a way to support them through college (Bragg, 1998).

Finally, several studies have assessed the impact of career academy participation on students' future education and employment. For example, Maxwell found that students participating in a career academy were more likely to attend a two or four-year post-secondary institution (Maxwell & Rubin, 1997). North Carolina and Colorado's statewide surveys of graduates found that school-to-work participants were 10 percent more likely to enroll in college than other students. (Hughes et al., 2001) Kemple, et al. (2000) also found that academy participation increased the number of students who researched college options and took the SAT or ACT (Kemple & Snipes, 2000). In addition, Linnehan revealed that career academy participation translated into better work performance and attendance upon graduation (1996).

The link between school-to-work participation and students' standardized test scores remains unknown. Few studies have demonstrated a link between school-to-work participation and students' standardized test scores. For example, the MDRC study found that academy participation had no effect on standardized test scores (Kemple & Snipes, 2000). In addition, the Center on Education and Work revealed that involvement in apprenticeships for students in Wisconsin did not affect ACT scores (Center for Education and Work, 1999).

The effect of school-to-work participation on different populations remains unclear. Kemple et al. (2000) recently outlined another concern with career academies around the differing impact that the academies have on different populations. For example, while the career academies improved attendance, dropout, and graduation rates for students at high risk of school failure, the academies had little, if any, positive effect on lower-risk students (Kemple & Snipes, 2000).

However, earlier research by Heebner, et al. (1992) actually showed an opposite phenomenon – that students entering career academies with lower reading scores did not benefit as often as other students (Heebner & et al., 1992). Maxwell's research and analysis suggests another possibility that career academies might yield greater levels of success for females, African-Americans, and native English speakers (Maxwell & Rubin, 1997). Due to the preliminary and inconclusive nature of this evidence, there is a need for future studies that further investigate the effects of career academies on different populations.

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Thus, research shows that applied learning may be an effective strategy for improving students' grades, attendance and graduation rates. In addition, applied learning holds promise for increasing student engagement as well as access to postsecondary opportunities. It remains to be seen which students benefit most from applied learning programs and whether participation results in higher standardized test scores.

PROFESSIONAL DEVELOPMENT/CURRICULUM & INSTRUCTION

DESCRIPTION

Teaching and learning is the core technology of education. Some educators (e.g., Sizer, 1984) depict this core as a triangle, with teacher, learner, and subject matter each representing one of the three points. In a discussion of high school reform, where subject matter specialization is relevant, questions of how to improve the core technology may become even more complicated than at the elementary level. While examples of systemic instructional improvement may be more common at the K-8 level, these experiences offer lessons for high school reform as well. Further, at any level, instructional improvement requires building the capacity of teachers to teach and students to learn. In this section, we will address some approaches to improving curriculum and instruction through intensive professional development of teachers (and principals) as well as other attempts to improve high school teaching and curricula.

THEORY OF ACTION

Underlying this approach to reform is a belief that focusing reform efforts on the core of educational practice – pedagogy and curriculum – is the most effective means for improving student learning.

The three key mechanisms for implementing this strategy are as follows:

- Targeted professional development to build teacher capacity and improve instruction
- Preparing/requiring teachers to offer more challenging curriculum to improve student outcomes
- Upgrading curriculum and eliminating non-college prep/low track offerings to enable more students to have access to college

EXAMPLES

New York City's District Two: A Critical Case. Although it serves a predominately K-8 population, many view New York's District #2 as the "existence proof" that system-wide instructional improvement can work in a diverse urban setting. Elmore and Burney (1996, 1997, 1998, 2000) have engaged in intensive study of the District #2 strategy to outline its organizing principles and to look closely at the process of continuous improvement, the district's management of school-by-school variation, and the role of leadership in improving instruction.

Elmore and Burney (1997) identified seven organizing principles of the District #2 instructional improvement strategy:

1. It's about instruction and only about instruction.
2. Instructional improvement is a long, multi-stage process involving awareness, planning, implementation, and reflection.
3. Shared expertise is the driver of educational change.
4. The focus is on system-wide improvement.
5. Good ideas come from talented people working together.
6. Set clear expectations, then decentralize.
7. Collegiality, caring, and respect. (1997, p. 5-6)

Together, these guiding principles define and shape the professional activity of teachers, principals, and central administrators in District #2. Under the leadership of Superintendent Anthony Alvarado for over a decade, the district moved from the middle of the pack (about 16th overall out of 32 community districts) to the second-ranked spot (Elmore & Burney, 1997).

How did they get there? The role of professional development. District #2 did not improve the performance of its students overnight. Indeed, district administrators placed professional development geared towards improved instruction at the center of all of their efforts. As Elmore and Burney describe, "Professional development in District #2 is a general management strategy rather than a specialized administrative function. It permeates the work of the organization as well as the organization of the work (1997, p. 6)." With the support of a Deputy Superintendent and Professional Development Director, Alvarado created formal structures to institutionalize professional development within the district. These included:

- *The Professional Development Laboratory:* A structure which supports teachers in the development of their practice by allowing periods of intensive observation of and supervision by an experienced master teacher
- *Instructional Consulting Services:* Internal and external consultants working in schools and in classrooms on specific issues of practice
- *Intervisitations and Peer Networks:* Short-term cross-site visitations for teachers and principals and mentoring partnerships for principals at different stages of their careers
- *Off-Site Training:* Held during the summer and also the school year, the district supports ongoing content-focused training, much of which is planned by schools based on their specific needs
- *Oversight and Principal Site Visits:* District #2 institutionalized the "walk-through," a formal, structured district staff visit to a school which consists of a pre-conference with the principal, a series of classroom observations, and a de-briefing, followed by a written feedback for the principal.

(Adapted from Elmore and Burney, 1997, p 7-8).

Finally, Elmore and Burney (1997) have identified five themes which have guided the implementation of District #2's instructional improvement strategies:

1. The phased introduction of instructional changes organized mainly around content areas.
2. The intentional blurring of boundaries between management of the system and the activities of staff development.
3. A complex and evolving balance between central authority and school site authority.
4. Unapologetic exercise of control in areas that are central to the success of the decentralized strategy, most notably the recruitment, selection, training, and retention of staff.
5. Consistency of focus over time. (p. 8-9)

We have included this level of detail on District #2 to demonstrate that the meaningful improvement of instruction, which has been followed by significant improvements in student achievement, is intense, complex, hard work. Indeed, some teachers and principals have not agreed with the district's laser beam-like focus on improving instruction and have retired, relocated, or been "counseled out (Elmore & Burney, 1997, p. 4)." This approach may leave little room for other educational philosophies, but the payoffs regarding improvements in teaching and student performance are evident.

San Diego: Bringing the District #2 strategy to high schools. In the context of high school reform, the District #2-type of instruction-focused strategy is still in its early stages. In 1998, Superintendent Alan Bersin brought Alvarado to San Diego Unified as his Chancellor of Instruction to implement his ideas on educational reform in this new setting. San Diego provided a challenge of a different sort: not only is the district significantly larger than District #2 (roughly 140,000 students versus 22,000), San Diego City Schools also includes upwards of 18 comprehensive high schools, whereas District #2 had no such schools in its jurisdiction.

To address the problem of high school underperformance in San Diego, the work of high school reform in San Diego will focus on four key areas: student failure, school structure, instructional practices, and principal leadership. The efforts in San Diego's high schools build upon the work of reform in the district at the K-8 level, with the belief that improvements at the elementary level will eventually reduce the need for remediation at the high school level (Blueprint, Year 1, available at www.sandi.net).

In addition, a reform planning group has identified five structures which will support the work of high school reform.

- *Coherent curriculum frameworks* that are used by every teacher to provide consistent high quality instruction and standards-based content.
- *Assessments* that include criterion-referenced and performance measures to appraise student learning and provide support interventions as soon as their need is detected.
- *Intensive additional courses for low performing students* in literacy and mathematics with extended study time, reduced class size, and an enhanced curriculum and pedagogical model.
- *Ongoing job-embedded and site-based professional development* for teachers complemented by centralized institutes that address pedagogy and content in the context of changing failure to success.
- *Leadership development and ongoing professional support for principals*, with mentor principals, instructional conferences, study groups, and an Educational Leadership Development Academy.

(From San Diego Unified's *Schools for a New Society* proposal application, available on the web at www.sandi.net. Emphasis added.)

The overarching purpose of high school reform in San Diego is to transform "all high schools into stimulating learning environments where all students engage successfully in a substantive core of intellectual work (*Schools for a New Society*, p. 1)."

It is too early to assess the San Diego high school reform initiative, as the district is still engaged in work under planning grants. But, true to his ethic in District #2, Alvarado does not believe that September is the only month in which school innovation can be introduced. Thus far, the district has implemented literacy and math support programs for high school students performing well-below grade level, regular principal conferences, and on-site professional developers in high schools. They are moving ahead in their efforts to offer physics to all 9th grade students and to institute Mathematics Supervisors to oversee and support the improvement of math instruction at the district's high schools (Blueprint Year 2, available from www.sandi.net.).

Clearly, the work of reform in San Diego is intensive, far-reaching, and multifaceted. It stands as the largest attempt at system-wide urban school reform (and, by extension, high school reform), and there are some positive early signs. Many schools have met their state-mandated performance targets, school improvement resources have been targeted to individual schools, and, as Larry Cuban and Mike Usdan observed, "the outlines of a district professional culture have begun to emerge (L.A. Times, April 22, 2001)." Whether or not the reform will succeed in reversing trends of low student performance in the district's high schools remains to be seen. In any case, the example of San Diego will prove instructive in our learning about strategies for multi-school reform at the secondary level.

Other strategies. There are a number of other curriculum and instructional improvement strategies targeted at high schools. Among them:

- A return to reading instruction at the secondary level. In San Diego's Genre Studies courses and in the IRA-affiliated Project CRISS (Creating Independence through Student-Owned Strategies), teachers incorporate reading comprehension strategies into their lessons, often across subject areas. In research submitted to the U.S. Department of Education, Project CRISS participants demonstrated significant recall of read material compared to students in a control group at grades 4, 6, 8, and 11 (www.projectcriss.org).
- Implementation of NCTM standards in mathematics classrooms (www.nctm.org)
- The International Baccalaureate (IB) program, the Geneva-based college preparatory program known for its detailed school application process, intensive teacher training, and rigorous, inquiry-based curriculum (www.ibo.org)
- K-16 "Bridging Strategies:" To address the problem of misalignment between high school and college curricula and requirements, many states are undertaking efforts to increase articulation between K-12 and higher education. If successful, these strategies could reduce the need for remediation at the college level by aligning high school and university assessments and standards. (www.stanford.edu/group/bridgeproject)

REVIEW OF RECENT RESEARCH

Just as the strategies of professional development and improving curriculum and instruction encompass a wide array of approaches, so too does the research literature on these efforts. Three of the more common topics are addressed below.

Investing in teacher learning and professional community. The evidence that teacher preparation may be the strongest predictor of student performance is mounting (e.g., Ferguson & Ladd, 1996; Greenwald, Hedges, & Laine, 1996, cited in Darling-Hammond and McLaughlin, 1999). Although not focused on high schools per se, the chapters in the recent *Teaching as the Learning Profession* (Darling-Hammond & Sykes, 1999) demonstrate that "strategic investments aimed at dramatic improvements in education should focus on the preparation and ongoing professional development of teachers and other educators (p. 376)."

One aspect of teacher development with particular relevance to high schools is the fostering of professional communities. As the work of McLaughlin and Talbert (2001, 1993) has shown, these teacher communities are central to change processes in schools – for better and for worse. In high schools, professional community may be manifest within or across departmental structures, and they may either support or inhibit an ethic of high expectations for all students. Indeed, within one school, there may be a number of very different professional communities. Any efforts to improve high school teaching, therefore, must attend to the importance of these communities and the subject-based departments of which these teachers are a part (Siskin & Little, 1995).

Science and math-based approaches. In response to concerns about declining science and math performance, particularly in urban areas, the National Science Foundation (NSF) has sponsored the Urban Systemic Program in Science, Mathematics, and Technology Education. While the effort is K-12, its links to the workplace and to colleges and universities imply strong connections with high school math and science programs. Urban districts that demonstrate district-wide, standards-based reform in science and math are eligible for the grants, which range from $1-3 million per year depending on district size, for up to five years. Through this effort, the NSF "seeks to stimulate interest, increase participation, improve achievement, and accelerate career advancement and success for all students of the participating urban school districts" (USP Grant Application, available on the web, www.nsf.gov). Districts were given latitude in designing their programs as long as their link to improved student achievement could be demonstrated.

A preliminary evaluation of the initiative by Systemic Research, Inc. (2001) finds gains in student achievement, particularly among districts with multi-year participation. Teachers are participating in intensive professional development and changing classroom practice as measured by a survey of enacted curriculum. The evaluators also found progress towards the NSF goal of increasing the proportion of urban students enrolling in college-preparatory math and science classes, with underrepresented minority students making the greatest gains. In participating schools, rates of college-entrance exam taking are also on the rise.

In addition to changes within schools, the evaluation found changes at the district and community level to support the goals of the Urban Systemic program. The evaluators found increased support of professional development, provision of disaggregated data to schools, and innovative approaches to resource allocation in participating districts. Schools and districts are also partnering with local corporations, research centers, and universities to provide students and teachers with applied learning opportunities (Systemic Research, 2001).

In a Brookings Paper on Educational Policy (1998), Porter analyzed two curricular reform initiatives: one to increase the units of math and science required for high school graduation, and the other, provision of a "transition" math course to enable lower-achieving students to take college-preparatory math courses. Under increased graduation requirements, he found that students did indeed take more science and math courses without an increase in dropout rates, and transition courses did enable more students to take college-prep math classes. He noted that the finding regarding the transition math classes is particularly important since the curriculum for those courses was a complete replacement of what teachers had previously taught. Overall, Porter's findings indicate that "high school upgrading policies in mathematics and science can be expected to have positive effects (1998, p. 163)." Further, as his research uncovered no "watering down" of curriculum with these reforms, he suggests that perhaps "general" or "terminal" math courses should be eliminated.

Detracking as curricular reform. Tracking, or the practice of sorting students into different types of curricular programs based on perceived aptitude and/or likely post-secondary attainment is prevalent in America's comprehensive high schools (Oakes, 1985). As urged by James Bryant Conant in the late 1950's, smaller high schools have been consolidated into larger schools and differentiated along three lines: academics, vocational education, and general education. Although the hold of this three-tiered structure on U.S. high schools may be loosening, students from lower-income families continue to suffer disproportionately from these leveled systems (Lucas, 1999).

Largely as a result of desegregation mandates, some schools have undertaken "detracking" as an attempt to question and remove the barriers that allow some students to receive college-preparatory courses while others do not (Wells & Serna, 1996). Detracking could involve the removal of programs for the "gifted and talented," reduction of prerequisites for enrolling in AP courses, or elimination of remedial ("non-college bound" or "general ed") tracks altogether. As Oakes and Wells (1999) and Wells and Serna (1996) have found, the process of detracking is fraught with combined challenges of curriculum and politics. In particular, they found parents of more "advantaged" students fighting against changes that might limit their child's access to AP and other high-track courses. They also describe teachers feeling caught between their desires to upgrade the quality of the curriculum for all students and parental pressure to maintain hierarchical course offerings. The modal result appears to be a reduction in the lowest-track course offerings, but without an equal increase in students taking AP-type courses. So while floor may be raised, access the ceiling remains limited (Lucas, 1999; Oakes & Wells, 1999).

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Certainly, attacking the core of educational practice as a reform approach has intuitive appeal. Evidence supporting this approach is mounting, although it is as yet unproven as a way of improving high schools on a large scale. Researchers will be folllowing the San Diego example closely to see what we can learn about system-wide high school reform focused on curriculum and instruction.

YOUTH DEVELOPMENT

DESCRIPTION

What is youth development? While it may not be a household phrase yet, the term "youth development" is now part of the everyday vocabulary of many policymakers, social workers, educators, and other individuals working in youth-related professions. The term "youth development" has existed for several decades, but received increased attention in the late 1980's when two important publications were released: The Grant Commission's *The Forgotten Half* and the Carnegie Foundation's *Turning Points*. Together, these reports focused attention on America's youth and began to advocate for helping to *prepare* youth instead of trying to *prevent* or remedy problems (Task Force on Education of Young Adolescents, 1989; Pittman, Irby, & Ferber, 2000; William T. Grant Commission on Work, 1988). Youth development has gained even more momentum in the past decade as a result of a number of high profile tragedies that have involved youth as well as a growing awareness that today's global economy places new and tougher demands on youth (Connell, Alberti, & Smith, 2000).

Despite the growing acceptance and use of the phrase youth development, there is little consensus as to the definition of the term (Catalano, 1998; Connell et al., 2000; Gary, 2000; Pittman et al., 2000). As Jaffe explains, "it is not a single program and doesn't bring to mind any particular substantive action or content (2000)." Thus, in many ways, youth development has become a broad "catch-all" descriptor for a wide variety of youth-oriented programs and initiatives.

The past decade, however, has brought numerous attempts to clarify and define youth development. In a piece that has greatly influenced the field of youth development, Pittman and Cahill explained that youth development is an ongoing growth process in which *all* youth participate. During this process, youth are trying to meet their personal and social needs as well as build skills and competencies that will help them in the present day and in the future (Pittman & Cahill, 1992). Building on Pittman's work, Catalano defined positive youth development as seeking "to promote healthy development; foster positive youth outcomes; focus 'non-categorically' on the whole child; focus on the achievement of developmental tasks; and focus on interactions with family, school, neighborhood, societal, and cultural contexts (Catalano, p. 8-9)." To further operationalize the definition, Catalano explained that positive youth development programs attempt to accomplish one or more of the following objectives:

1. Promotes bonding
2. Fosters resilience
3. Promotes social competence
4. Promotes emotional competence
5. Promotes cognitive competence
6. Promotes behavioral competence
7. Promotes moral competence
8. Fosters self-determination
9. Fosters spirituality
10. Fosters self-efficacy
11. Fosters clear and positive identity
12. Fosters belief in the future
13. Provides recognition for positive behavior
14. Provides opportunities for prosocial involvement
15. Fosters prosocial norms

(Catalano, 1998, p. 1-2)

THEORY OF ACTION

Why youth development? The theory of action underlying the youth development approach to reform is based on the failure of earlier prevention programs. Research demonstrated that interventions centered on providing knowledge or skills to correct a deficit failed to produce positive effects (Catalano, 1998; Connell et al., 2000). Also, research suggested that focusing on one single problem behavior ignored the complexity of the "whole child" (Catalano, 1998; Kirby, 1997; Tolan & Guerra, 1994).

As a result of these findings, a new approach began to emerge. Instead of *reducing deficits*, the focus now shifted to *building assets* in youth. There was a growing recognition that preventing teenage pregnancy or drug use was not enough; students also needed to be equipped with the skills and knowledge that would enable them to succeed in the present and the future. As Pittman argued, "problem free is not fully prepared (Pittman & Wright, 1991)."

This concept was supported by an increasing amount of research during the 1990's. For example, the National Longitudinal Study of Adolescent Health showed that connections to support networks help protect youth across multiple domains including emotional health, violence, substance abuse, and sexuality (Resnick, 1997). Academy for Educational Development, the Center for Youth Development and Policy Research, Public/Private Ventures, and Search Institute have also served important roles in building the research to give the theory behind youth development greater credibility.

What relevance does youth development have for adolescents? Recently, many resources and much attention has been directed toward youth development programs that focus on the younger years. However, youth development also has an important role for adolescents. Contrary to the popular notion that the teenage years are too late to make a difference, Costello et al. explain how the process of adolescence is critical for developing the skills and knowledge necessary to succeed in adulthood (Costello, Toles, Spielberger, & Wynn, 2000). Pittman and Wright defined the six basic needs of adolescence as the following:

1. Safety/Structure
2. Belonging/Membership
3. Self-worth/Contributing
4. Independence/Control Over One's Life
5. Closeness/Relationships
6. Competence/Mastery

(Pittman & Wright, 1991)

Thus, a concise theory of action for youth development might read as follows: *Youth development concentrates on strengthening the institutions that affect youth, as well as the connections between these institutions, in order to provide more developmentally-appropriate learning environment focused on the "whole child." By providing young people with numerous, supported opportunities to develop the assets and competencies they need, they are more likely to experience success in both the present and the future.*

EXAMPLES

Because the goals of youth development are far-reaching and still evolving, it is almost impossible to create a discrete list of programs that fall under this umbrella. Catalano helped to organize the wide array of programs by creating a useful distinction between programs that are organized and implemented by the following social sectors: family, school, community, and workplace (1998). Given the complexity of youth development programs, however, it is of little surprise that many programs do not fall neatly into these categories. The following represents a snapshot of some of the most prominent youth development strategies and programs that either directly involve or support the work of high schools.

- **Restructuring**: One of the problems commonly associated with large, traditional, comprehensive high schools is that their factory-like structure affords students limited opportunities to be known and to feel supported. In addition, the typical shuffling from one class to another every fifty minutes often prevents students from becoming deeply engaged in the subject matter (Costello et al., 2000, Sizer, 1984). A youth development framework supports the restructuring of high schools to make them more developmentally appropriate for adolescents. This might include changes such as extending class time, creating an advisory period where students meet with the same teacher and peer group every day, or creating schools-within-schools (for more on this strategy see the Small Schools section of this paper).

- **School-to-Work**: School-to-work strategies are an important aspect of youth development approaches. Through part-time employment, job shadowing, career academies, and many other school-to-work strategies, students are provided the opportunity to build meaningful relationships with adults. In addition, students learn new skills and are able to begin to plan and prepare for their future (Leffert, 1996). (For more detailed information on this strategy, consult the section on Applied Learning.)

- **Student voice**: One youth development approach that has gained increasing momentum over the past several years is providing students with opportunities to participate in school decision-making. Typically, students' voices have been absent from important school discussions and decisions. However, Mitra (forthcoming) argues that incorporating students' voices has positive benefits for the school as well as for the youth involved. She explains that this strategy can help students develop meaningful, positive relationships with adults, feel a greater sense of engagement and ownership in schools, and provide students with valuable opportunities to learn about decision-making and leadership.

  Examples of sites that have implemented student voice include the Students as Researchers Project in the UK. This project involved a group of students at a high school who identified important issues and then, with the support of staff, learned how to research, gather evidence, and present their recommendations (Fielding, 2001). Another example of student voice is some of the schools participating in the Bay Area School Reform Collaborative (BASRC).[3] Although increasing student participation was not an explicit goal of BASRC,

[3]BASRC was formed in 1995 in response to Ambassador Walter Annenberg's national challenge and 500 million dollar gift to public education. The Hewlett Foundation responded to this challenge and helped to support the creation of a

many of the high schools involved in the initiative have begun to involve students in their decision-making and reform work (Center for Research on the Context of Teaching, 2000).

- **Community youth development**: Community youth development is a relatively new term that refers to the joining of youth development and community development. The idea here is that a symbiotic relationship exists between youth and their communities: communities depend upon the energy and contributions of their youth while youth depend on the vitality, protection, and attention of their communities (The Ford Foundation, n.d.). In *Community Counts* (2000), McLaughlin expanded on the potential contributions of the community to young people explaining, "the community – in the form of the organizations and activities it supports – can help youth beat the odds associated with gaps in traditional institutional resources (p. 3)." In many cases, these community organizations team up with schools or schools play a prominent role in their efforts. The goals, structure, and content of the programs that fall under this category vary greatly. Programs range from national, multimillion-dollar efforts to more local, "home-grown" programs. One program that has received a great deal of attention recently is the Beacons Initiative. Beacon Centers are a national model of community partnerships offering a wide range of recreational, social service, educational, and vocational activities at the host site. Program offerings at the high school level could include activities such as SAT prep classes, self-defense lessons, employment training, and peer tutoring. Through activities such as these, Beacons strive to help youth develop positive behaviors and practices (Warren, 1999).

REVIEW OF RECENT RESEARCH

What is the state of youth development research? Although positive youth development programs have received increased attention during the past two decades, the body of empirical evidence surrounding youth development remains relatively weak (Catalano, 1998; Leffert, 1996). Several factors explain why this is the case. First, without a clear definition of youth development researchers and practitioners have struggled to establish outcomes. Gary explains how it is much more common and easier to assess traditional problems such as student drop-out rates or teenage pregnancy than it is to assess how many students are abstaining from sex or are involved in supportive, caring relationships with peers and/or adults (2000). Catalano (1998) asserts that because the field has not established clear outcomes and measures for assessing these outcomes, many aspects of youth development go unassessed.

Another problem that contributes to the infancy of the research in the area of youth development is the lack of institutional support in academia for youth development (Benson & Saito, 2000; Pittman et al., 2000). Youth development does not have the same number of researchers as many other fields do. This may in part be due to the fact that the field is interdisciplinary in nature thus making it difficult for any one discipline to take charge of a research agenda.

regional reform initiative that provided Bay Area schools with 50 million dollars. This amount has been matched by public and private donations of more than 60 million dollars.

What does the existing youth development research tell us? Despite the weaknesses in youth development research, several important studies that focus on student outcomes have been conducted. Perhaps the most significant early study was one conducted by Conrad and Hedin in 1981. In an analysis of 30 experiential education programs, they found that participating students displayed improvements in moral reasoning, self-esteem, and attitude toward community service. Conrad and Hedin also found that students showed improvement in their personal and social development. Cognatta and Sprinthall (1978) also found improvement in ego and moral development of students participating in service-learning programs, while Newman and Rutter (1983) found that service-learning participants showed an increased sense of social responsibility and competence.

More recently, there have been several major studies worthy of note. In her review of various types of youth development programs, Leffert (1996) found that many of the programs resulted in improved attendance, academic achievement, and self-esteem. In addition, participants in these programs displayed a decrease in school failure and the use of substances as well as other high-risk behaviors.

In another important analysis, Catalano (1998) identified 77 positive youth development programs with evaluation data. However, only 25 of these programs were chosen for the analysis; the other 52 were excluded because they did not meet the study's scientific criteria or they failed to show evidence of making an impact. Of these 25, only a handful are relevant to high schools. For example, one high school oriented program was the Teen Outreach Program. Adolescents involved in this program participated in volunteer activities and classroom discussions focusing on service experiences and other age appropriate issues. Evidence showed a decrease in school failure as well as school suspension. Another program, the Valued Youth Partnership program, also showed positive outcomes. In this program, high school students served as mentors and tutors for younger students. The positive effects for high school students included reduced dropout rates and improved reading grades. Finally, the Quantum Opportunities Program provided a wide range of services ranging from peer tutoring to community service projects to mentoring. The evaluation of this program revealed that participants had significantly higher high school graduation and post-secondary attendance rates. In addition, participants received more honors and awards than the control group of students.

A more recent meta-analysis was conducted by Scales and Leffert in 1999. They found that outcomes of positive youth development programs included the following:

- Improved self-esteem
- Improved life skills including skills such as leadership and public speaking
- Increased communication with family
- Decreased involvement in negative, high risk behaviors
- Increased academic achievement
- Decreased psychosocial illnesses such as shyness or loneliness

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Overall, then, youth development initiatives appear to have positive outcomes for students. What is less clear are strategies for merging these efforts with the work of high school reform.

COMPREHENSIVE/WHOLE SCHOOL REFORM

DESCRIPTION

What is whole school reform? "Whole school" or "comprehensive" school reform strategies strive to overcome the failings of piecemeal, incremental approaches. By using research-based methods, whole school reforms address the many interrelated aspects of school functioning simultaneously. With no less than 30 reform "models" currently implemented in schools nationwide, there is no *one* whole school reform strategy. Yet all of the strategies address multiple core areas of schooling such as curriculum and instruction, school organization and governance, assessment, and professional development.

Although the models have been developed by independent organizations, much of the momentum behind whole school reform implementation resulted from federal legislation providing grants to schools to introduce one of the models at their site. So while not all whole school reform is federally-funded, nine guidelines established by the Department of Education characterize the multi-faceted nature of whole school reform. These strategies incorporate the following:

1. Research-based methods
2. Comprehensive approach
3. Staff development
4. Goals
5. Supportive staff members
6. Parental and community involvement
7. External assistance
8. Evaluation
9. Coordination of funds

An important aspect of comprehensive school reform is that, as mentioned above, schools typically partner with the reform developers or "design team" to receive ongoing assistance with implementation of their chosen model.

THEORY OF ACTION

A theory of action for whole school reform could be: *Whole school reform rests on the belief that changing school cultures and aligning the effort of all involved in each school's educational enterprise can bring about high levels of achievement for all students. To avoid reinventing the wheel or the continued pursuit of incremental approaches, schools can choose from a variety of pre-developed models, the staff of which are able offer support for initial adoption and ongoing implementation.*

Many of the most frequently implemented programs (e.g., Accelerated Schools, Comer School Development Program, Success for All) were designed with a K-6 or K-8 focus. Increasingly, however, designs have been broadened to include grades 9-12 and a small number of high school-specific approaches have been developed.

EXAMPLES

Below are some of the whole school reform strategies most often implemented at the high school level.

- **Coalition for Essential Schools (CES):** As an outgrowth of the Study of High Schools and his book *Horace's Compromise*, Ted Sizer launched the Coalition of Essential Schools in 1984 as an attempt to overcome the failings of the comprehensive high school (such as depersonalized environments and lack of academic press). In lieu of a specific "program" or "model," CES instead offers ten common principles[4] to guide school improvement efforts. These principles include the metaphor of "student-as-worker" rather than "teacher-as-deliverer-of-instructional services;" teachers as generalists first, specialists second; and the stipulation that teachers should see 80 or fewer students per day (Sizer, 1984). Since its original inception, CES has identified four areas of focus around which they provide implementation support: school design/organizational practices, classroom practice, leadership, and community connections (www.essentialschools.org).

  Although less prescriptive than most whole school reform strategies, CES aims to redesign high schools into places where students "learn to use their minds well." While CES includes many schools in the K-8 grade span among its membership, the majority of its members are high schools.

- **America's Choice**: Developed by The National Center on Education and the Economy, America's Choice is a K-12, standards-based approach to whole school reform. The core of this program is its aligned standards, curriculum, and assessments, supported by multi-grade "looping," ongoing professional development for teachers, and on-site technical support. Their high-school specific strategies are as follows:

  1. A small school "house" system
  2. Curriculum focused on an academic core
  3. Strong college prep program
  4. Strong work-based technical prep program
  5. All students prepared for college (www.ncee.org/ac/acdesc.html)

- **Talent Development High Schools (with Career Academies)**: Developed by the Center for Research on Students Placed at Risk (CRESPAR) at Johns Hopkins University, Talent Development High Schools consist of two main strategies: the creation of a Success Academy for ninth-graders and theme-based career academies for students in upper grades. All students receive a common academic core.

  The Talent Development program was developed in response to research on high school dropout patterns that demonstrated high attrition at 9th grade. Thus, the approach aims to create a responsive ninth grade experience and to gear instruction in subsequent years to students' academic needs and career interests to enhance engagement and learning.

[4] The tenth principle, that schools should "demonstrate non-discriminatory and inclusive policies, practices, and pedagogies" was added in 1997 (www.bayces.org/aboutbayces/principles/10principles.html).

A unique feature of Talent Development high schools is that each academy (with a maximum of 300 to 350 students) is self-contained, with its own faculty, management team, and physical space, including a separate entrance. Talent Development schools also offer a "Twilight School," an after-hours enrichment program for students who have serious attendance and/or discipline problems (www.aasa.org/reform/Approach /talent.htm).

- **High Schools that Work (HSTW):** As discussed in the Applied Learning section of this paper, High Schools That Work is an attempt to blend a traditional college-preparatory curriculum with high-quality vocational and technical experiences to prepare students for the worlds of both college and work. While HSTW does not prescribe a set curriculum, they recommend subject-specific graduation requirements (such as at least four credits in English courses with the content and performance standards of college-preparatory English and at least four credits in an academic or a vocational-technical major). These requirements supersede those of "basic" or "general education" curricular tracks.

- **ATLAS Communities**: ATLAS, or Authentic Teaching Learning and Assessment for All Students, was formed through the collaborative efforts of leaders from two model-based schoolwide reform initiatives (the Coalition of Essential Schools and the School Development Program) plus two educational improvement organizations (Harvard's Project Zero and the Educational Development Center). Intending to pool the knowledge and expertise of several prominent reform organizations, ATLAS was awarded seed funding by New American Schools[5]. Unlike other school reform models, ATLAS works through "pathways," or feeder-pattern clusters of a high school and its constituent elementary and middle schools to ensure a coherent K-12 learning experience for students.

  ATLAS works with its pathways toward five goals:

  1. To improve learning for all students by focusing on teaching for understanding;
  2. To evaluate student work through a variety of standard and authentic assessments;
  3. To engage teachers in serious, sustained professional development through whole-faculty study groups;
  4. To involve families and other community members in the education of their children;
  5. To reorganize the internal structures and decision-making processes of schools and districts to support the above goals (www.aasa.org/reform/Approach/atlas.htm).

- **Expeditionary Learning Outward Bound (ELOB):** As described by Bodilly (1998), Expeditionary Learning "engages students and revitalizes teachers through a teacher-guided, project-based approach that focuses every aspect of teaching and learning toward enabling all students to meet rigorous academic standards and character goals (p. 126)." Students and teachers participate in long-term "learning expeditions" which emphasize hands-on, project-based learning, fieldwork, and direct service. The design incorporates teacher "looping" and teaming, and professional development revolves around the teacher-led design of the expeditions.

[5] New American Schools (formerly the New American Schools Development Corporation) is a privately-funded nonprofit organization which supports the development and dissemination of whole-school reform designs (www.naschools.org).

REVIEW OF RECENT RESEARCH

Research on whole school reform falls into two main categories: implementation research and outcome research. As many of the programs are still relatively "young," implementation research dominates the available literature. Also, since the majority of whole-school reform models are implemented in K-8 sites, much of the research on comprehensive/whole school reform excludes high schools (e.g., Datnow, 2000; *Hope for Urban Schools*, 1999).

Aside from these constraints, one of the main criticisms of comprehensive school reform is that although the models are all said to be "research-based," the research base for many of the programs is weak, inconsistent, or conducted by internal program staff (CPRE, 1998). In an AIR-developed *Educator's Guide to Schoolwide Reform* (www.aasa.org/reform/ overview.htm), the researchers echo this point:

> In general, evidence of positive effects on student achievement – arguably the most important feature of any reform approach – is extremely limited. Even though many of the approaches have been in schools for years, only three provide strong evidence of positive effects on student achievement. As a result, educators often are considering schoolwide reform without vital information on which to make decisions. More rigorous evaluations are needed, with broad dissemination of findings (Herman, 1999).

Nonetheless, there is some empirical evidence for these programs, which falls into the two categories mentioned above:

Implementation research. One of the more comprehensive studies of whole school reform models is the RAND analysis of the Demonstration and Scale-Up Phases of the New American Schools designs (Bodilly, 1996; 1998). Using the reform model as the unit of analysis, these researchers studied the implementation of seven NAS-supported designs (including ATLAS and Expeditionary Learning) in a sample of school sites throughout the country. Although their focus was on the implementation process, not the designs themselves, these studies are instructive about some particular issues relevant to high school adoption of whole school reform strategies. Specifically, they found that:

- The designs tended to be more fully developed at the elementary level, which appears to have led to smoother implementation there than at the secondary level. Also, many of the support providers lacked secondary-level implementation experience.
- As many of the models recommend or require changes in student grouping and scheduling, implementors confronted structural patterns typical in high schools (i.e., large school size, subject-based departmentalization, 50-minute periods). These structural features common to secondary schools appear to have stymied implementation.

There are also federal studies of comprehensive school reform implementation, such as *CSRD in the Field*, which provides lessons learned and resources for implementing sites (www.ed.gov/offices/OESE/compreform/csrd00report.html).

Findings regarding student outcomes. An AIR study (Herman, 1999) compared 24 whole-school reform strategies along the dimensions of a) evidence of positive effects on student achievement, b) support provided by developers and c) first-year adoption costs. The study included two high school-specific approaches: High Schools that Work, which received high marks for student achievement and implementation support, and Talent Development, which at the time was considered "marginal" in its evidence of positive effects on student achievement but strong on implementation support (www.aasa.org/reform/overview.htm).

A more recent study of Talent Development schools in Philadelphia indicated positive early signs for the program. In an analysis of the Ninth Grade Success Academies at two schools, researchers found improvements in student behavior, attendance, academic performance, and promotion to 10th grade (Philadelphia Education Fund, 2000).

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Whole school reform encompasses a wide variety of school improvement strategies. Perhaps with time and continued investment, the research base will grow, particularly in relation to high school implementation and outcomes. Yet because of their comprehensiveness, these approaches remain promising.

REVIEW OF SELECTED HIGH SCHOOL REFORM STRATEGIES

APPENDICES

A: Small Schools

B: Applied Learning

C: Professional Development/ Curriculum & Instruction

D: Youth Development

E: Comprehensive/ Whole School Reform

APPENDIX A: SMALL SCHOOLS

ORGANIZATIONS

The Coalition for Essential Schools (CES) is "a growing national network committed to increasing student achievement by re-inventing school design, classroom practice, leadership, and community connections (www.essentialschools.org)." Formed by **Ted Sizer** in 1984. Originally focused on high schools but now includes schools across the K-12 range. Website has links to CES-affiliated schools, centers, and local networks.

> **Center for Collaborative Education** (CCE): The New York City CES affiliate. Current co-directors are Heather Lewis and Priscilla Ellington (http://www.cce.org).
>
> The **Bay Area Coalition for Equitable Schools** (BayCES): The Northern California CES affiliate. Recently awarded funding from the **Gates Foundation** to support the development of new, small, autonomous schools in Oakland, in partnership with Oakland Unified School District, and Oakland Community Organizations. (www.bayces.org)

Cross City Campaign: The Cross City Campaign for Urban School Reform (www.crosscity.org) is a national network of school reform leaders from seven cities (Baltimore, Chicago, Denver, Los Angeles, New York, Philadelphia and Seattle) working together with multiple stakeholders to improve public schools and education for urban youth. Website provides links to publications as well as "Flash Facts," research briefs including topics such as "Small Schools" and "High Schools in Focus." (www.crosscity.org/pubs/flashfacts.htm)

Middle College High Schools: Typically located on the campuses of two-year colleges, middle colleges are usually small, alternative high schools where students have access to college-level courses as well as high school classes. (see www.mcconsortium.org).

Small Schools Project (at the Center on Reinventing Public Education, University of Washington): Supported by the Gates Foundation, this organization provides technical assistance to small schools being created in Washington state and in other areas of the U.S. (www.smallschoolsproject.org). The Project is directed by Rick Lear, creator of small schools and former senior researcher at the Coalition of Essential Schools.

Small Schools Workshop (at the University of Illinois, Chicago): Founded by William Ayers and Michael Klonsky, the Small Schools Workshop is "a group of educators, organizers, and researchers collaborating with teachers, principals, and parents, in the creation and support of small, innovative public schools (www.smallschoolsworkshop.org)." Website has links to recent research and publications. They also maintain an active listserv.

APPENDIX A: SMALL SCHOOLS
(continued)

FUNDERS/CONSORTIA

Bill & Melinda Gates Foundation: Provides funding to high-achieving school districts and networks of schools in the Pacific Northwest and nationwide. Grants are to support: 1) improving achievement; 2) infusing technology into the learning environment; 3) increasing opportunities for quality professional development; and 4) strengthening home and community partnerships. Several grant recipients focus on small school work (e.g., BayCES, Aspire Public Schools, New Visions, and the University of Washington's Small Schools Project). (www.gatesfoundation.org/learning/ed/schools/default.htm). Website also provides links to research and resources on a number of school reform topics including school size (www.gatesfoundation.org/learning/ed/schools/resources/default.htm).

Carnegie Corporation of New York's "Schools for a New Society" Initiative: Ten urban distr ·ts were awarded planning grants in 2000. Five of the ten will be selected to receive five-year imp· mentation grants in 2001, which each district must match with public or private funds. The program is intended to support local school-district-community partnerships to reverse the chronic underperformance of urban high schools. First-round recipients are Boston, Chattanooga, Houston, Indianapolis, Little Rock, Portland (Oregon), Providence, Sacramento, San Diego and Worcester, MA. (www.carnegie.org; for press release, www.carnegie.org/sub/news/highschool.html.)

New Century High Schools Consortium for New York City: Established by the Bill & Melinda Gates Foundation, the Carnegie Corporation of New York, and the Open Society Institute (OSI), and managed by New Visions, this consortium is addressing the issue of underperforming comprehensive high schools in New York through a five-year, $30 million investment for school redesign and the development of new small schools in the city.

U.S. Department of Education's Smaller Learning Communities Program: Awarded planning grants ($25,000 – $50,000 per project) and will award implementation grants of $250-500,000 per project. Website (www.ed.gov/offices/OESE/SLCP/overview.html) provides links to the legislation, the grant application, and an overview of strategies for creating smaller learning communities with examples of actual schools implementing these strategies. The approved strategies include "schools-within-a-school, career academies, or houses; mentoring strategies such as personal adult advocates or teacher-advisory systems; magnet schools; flexible scheduling or lengthening the school year or day; and other innovations designed to create a more personalized high school experience." (from website)

APPENDIX A: SMALL SCHOOLS
(continued)

SELECTED CITATIONS (See annotated bibliography for full citations)

REVIEWS OF LITERATURE

Lee, 2000: *School Size and the Organization of Secondary Schools*

Gladden, 1998: *The Small School Movement: A Review of the Literature* (in Fine & Somerville, 1998)

Raywid, 1996. *Taking Stock: The Movement to Create Mini-Schools, Schools-within-Schools, and Separate Small Schools*

CITY-SPECIFIC STUDIES ON SMALL SCHOOLS:

CHICAGO

Wasley, et al, 2000: *Small Schools, Great Strides*

PHILADELPHIA

Fine, 1994: *Chartering Urban School Reform*

McMullan, Wolf, & Sipe, 1994: *Charter and Student Achievement: Early Evidence from School Restructuring in Philadelphia*

NEW YORK

Cook, 2000: *The Transformation of One Large Urban High School: The Julia Richman Education Complex* (in Clinchy, 2000)

Darling-Hammond, Ancess, McGregor & Zuckerman, 2000: *Inching Toward Reform in New York City: The Coalition Campus Schools Project* (in Clinchy, 2000)

Meier, 1995: *The Power of their Ideas*

MULTI-CITY

Ayers, Klonsky, & Lyon, 2000: *A Simple Justice: The Challenge of Small Schools*

Clinchy, 2000: Creating New Schools: *How Small Schools are Changing American Education*

Fine & Somerville, 1998: *Small Schools, Big Imaginations: A Creative Look at Urban Public Schools*

COST-RELATED ANALYSES

Stiefel, Iatarola, Fruchter & Berne, 1998: *The Effects of Size of Student Body on School Costs and Performance in New York City High Schools*

APPENDIX B: APPLIED LEARNING

ORGANIZATIONS

Jobs for the Future. The central goal of this organization is to develop and promote strategies that serve those who are now ill-prepared to get good jobs. Jobs for the Future explores the potential of various strategies and also supports intermediary organizations that successfully integrate education and employment opportunities. Their website, www.jff.org, provides more detailed information about the organization and interesting links to research and evaluation concerning school-to-work initiatives.

High Schools That Work. Founded by the Southern Regional Education Board, High Schools That Work (HSTW) strives to raise the bar for non-college bound students through the integration of challenging academic and vocational curricula. The nation wide network began with 28 sites in 13 states and has now expanded to over 800 sites in 22 states. (www.sreb.org/programs/hstw/hstwindex.asp)

New American High Schools. The New American High Schools Initiative is sponsored by the U.S. Department of Education, Office of Vocational and Adult Education. The initiative began in 1995 as an effort to ensure that all students are prepared for college and careers. Participating schools are involved in different innovations but share twelve elements. Among these elements are a focus on learning about careers and college opportunities through real-life experiences as well as the integration of technology into the classroom. The initiative's website, www.sonoma.edu/cihs/nahs provides more information about specific sites.

Center for Research on the Education of Students Placed at Risk (CRESPAR) Developed by staff at Johns Hopkins and Howard Universities, CRESPAR was founded in October 1994. The organization is funded primarily by the Office of Educational Research and Improvement (OERI). CRESPAR is responsible for developing the Talent Development Model – an applied learning strategy that incorporates career academies as a vehicle for whole school reform. (www.csos.jhu.edu/Talent/high.htm)

SELECTED CITATIONS (See annotated bibliography for full citations)

REVIEWS OF LITERATURE

Hughes, K.L., Bailey, T.R., & Mechur, M.J., 2001: *School-to-Work: Making a Difference in Education. A Research Report to America.*

Visher, M.G., Teitelbaum, P., & Emanuel, D., 1999: *Key High School Reform Strategies: An Overview of Research Findings.*

APPENDIX B: APPLIED LEARNING
(continued)

PROGRAM-SPECIFIC EVALUATIONS

McPartland, et al, 1996: *The Talent Development High School: Early Evidence of Impact on School Climate, Attendance, and Student Promotion.*

McPartland, et al, 1998: *Improving Climate and Achievement in a Troubled Urban High School Through the Talent Development Model.*

Bottoms, G. & Mikos, P., 1995: *Seven Most-Improved High Schools That Work Sites Raise Achievement in Reading, Mathematics, and Science.*

Bottoms, G., 2000: *The 2000 High Schools That Work Assessment: Improving Urban High Schools.*

Dayton, C., 1997: *California Partnership Academies: 1995-96 Evaluation Report.*

APPENDIX C: PROFFESIONAL DEVELOPMENT/ CURRICULUM AND INSTRUCTION

ORGANIZATIONS

The International Baccalaureate Organization (IBO): Provides a "demanding pre-university course of study that leads to examinations. It is designed for highly motivated secondary school students aged 16 to 19. The diploma programme has earned a reputation for rigorous assessment, giving IB diploma holders access to the world's leading universities." www.ibo.org

NCTM (National Council of Teachers of Mathematics): Developed rigorous mathematics standards, available on the web at www.nctm.org.

NSF's Urban Systemic Initiative Program: The goal of this program is to improve achievement of urban students in the areas of mathematics and science with an emphasis on technology. (www.nsf.gov; see www.systemic.com for evaluation data).

SELECTED CITATIONS (See annotated bibliography for full citations)

PROFESSIONAL DEVELOPMENT:

Darling-Hammond & Sykes, 1999: *Teaching as the Learning Profession*

TRACKING AND DE-TRACKING

Lucas, 1999: *Tracking Inequality: Stratification and Mobility in American High Schools*

Wells & Serna, 1996: *The Politics of Culture: Understanding Local Political Resistance to Detracking in Racially Mixed Schools*

Oakes, 1995: *Keeping Track*

CURRICULUM REFORM

Porter, 2000: *The Effects of Upgrading Policies on High School Mathematics and Science*

CITY-SPECIFIC RESOURCES:

On San Diego's Reform Initiative: www.sandi.net

New York City's District #2:

Elmore & Burney, 1996: *Investing in Teacher Learning: Staff Development and Instructional Improvement in Community School District #2, New York City*

Elmore & Burney, 1997: *School Variation and Systemic Instructional Improvement in Community School District #2, New York City* (available at http://www.lrdc.pitt.edu/hplc/HPLC_Publications.html)

Elmore & Burney, 1998: *Continuous Improvement in Community School District #2, New York City* (available at http://www.lrdc.pitt.edu/hplc/HPLC_Publications.html)

Elmore & Burney, 2000: *Leadership and Learning: Principal Recruitment, Induction, and Instructional Leadership in Community School District #2, New York City* (available at http://www.lrdc.pitt.edu/hplc/HPLC_Publications.html)

APPENDIX D: YOUTH DEVELOPMENT

ORGANIZATIONS

Carnegie Council on Adolescent Development

U.S. Department of Health and Human Services

Office of Juvenile Justice and Delinquency Prevention

Annie E. Casey Foundation

Robert Wood Johnson Foundation

Consortium on the School Based Promotion of Social Competence

SELECTED CITATIONS (See annotated bibliography for full citations)

REVIEWS OF LITERATURE

Catalano, 1998: *Positive Youth Development in the United States: Research Findings on Evaluations of Positive Youth Development Programs.*

Jaffe, ed, 2000: *Youth Development: Issues, Challenges, and Directions.*

Leffert, N., 1996: *Making the Case: Measuring the Impact of Youth Development Programs.*

COMMUNITY YOUTH DEVELOPMENT

McLaughlin, 2000: *Community Counts: How Youth Organizations Matter for Youth Development.*

Pittman & Wright, 1991: *Bridging the Gap: A Rationale for Enhancing the Role of Community Organizations in Promoting Youth Development.*

APPENDIX E: WHOLE SCHOOL REFORM

ORGANIZATIONS

Northwest Regional Educational Library (www.nwrel.org/scpd/catalog/index.shtml): Maintains a catalog of school reform models which can be organized by grade level, focus area, etc., to help schools identify and select an appropriate model.

National Clearinghouse for Comprehensive School Reform (www.goodschools.gwu.edu): Based on the premise that "good schools need good information," this web-based clearinghouse collects and disseminates information to help schools and districts implement comprehensive school reform models. Established by the U.S. Department of Education in 1999, the Clearinghouse is a partnership of the George Washington University, the Council for Basic Education, and the Institute for Educational Leadership.

New American Schools: Founded in 1991, New American Schools is "a non-partisan, business-led nonprofit supporting comprehensive school reform designs that adhere to rigorous requirements to help the schools significantly raise achievement for all students (www.naschools.org)." The organization provides funding and technical assistance to school reform designs to support their efforts to "go to scale." Currently, they support 10 models including ATLAS Communities, Co-Nect Schools, and Expeditionary Learning Outward Bound.

SELECTED CITATIONS (See annotated bibliography for full citations)

EVALUATIONS:

Bodilly, 1996: *Lessons from new American Schools Development Corporation's Demonstration Phase*

Bodilly, 1998: *Lessons from new American Schools' Scale-Up Phase: Prospects for Bringing Designs to Multiple Schools*

TECHNICAL ASSISTANCE:

U.S. Department of Education, 2000: *CSRD in the Field: Final Update.* Available online at http://www.ed.gov/offices/OESE/compreform/csrd00report.html

Herman, 1999: *An Educator's Guide to Schoolwide Reform.* Available online at www.aasa.org/reform/index.htm.

CPRE Policy Brief RB-24, 1998: *States and Districts and Comprehensive School Reform.* Available online at www.gse.upenn.edu/cpre/frames/links.html

APPENDIX E: WHOLE SCHOOL REFORM
(continued)

HIGH-SCHOOL SPECIFIC (9-12)/K-12 MODELS

(see http://www.nwrel.org/scpd/catalog/LevelDirectory.asp for a listing of these models with links to each program's website).

America's Choice	Interactive Mathematics Program*
ATLAS Communities	Iowa Chatauqua Program
Audrey Cohen College: Purpose-Centered Education	Junior Great Books
Center for Effective Schools	League of Professional Schools
Coalition of Essential Schools	Math *Connections:* A Secondary Mathematics Core Curriculum*
Community for Learning	Modern Red Schoolhouse
Community Learning Centers	National Writing Project
COMP: Creating Conditions for Learning	Onward to Excellence
Co-nect	Paideia
Core Plus Mathematics Project/Contemporary Mathematics in Context*	Positive Action
Edison Schools	QuEST
Exemplary Center for Reading Instruction	School Development Program
Expeditionary Learning Outward Bound	Talent Development High School with Career Academies*
Feuerstein's Instrumental Enrichment	University of Chicago School Mathematics Project
High Schools That Work*	Urban Learning Centers
HOSTS	Ventures Initiative and Focus System
Integrated Thematic Instruction	

*Designated as a model for grades 9-12 only

REVIEW OF SELECTED HIGH SCHOOL REFORM STRATEGIES

Annotated Bibliography

Annotated Bibliography

Small Schools

Ayers, W., Klonsky, M., & Lyon, G. (2000). A Simple Justice : The Challenge of Small Schools. New York: Teachers College Press.

> A part of the *Teaching for Social Justice* Series, this book is divided into three sections: *Grounded Insights*, which provides some of the history and philosophy of small schools as a "movement;" *Portraits in Practice*, which offers snapshots of three very different small schools, and *Landscapes and Lessons*, where some small school pioneers (including Nancy Mohr, Dennis Littky, and Michelle Fine) reflect on their experiences founding and supporting small schools.

Bickel, R., & Howley, C. (2000). The Influence of Scale on School Performance: A Multi-Level Extension of the Matthew Principle. Educational Policy Analysis Archives, 8(22), 2-33. Available online at http://olam.ed.asu.edu/epaa/v8n22.

> Using data from schools in Georgia with eighth grades (n=367) and eleventh grades (n=298), the authors studied the interactive effects of SES, school size, and district size on student achievement. They conclude that reducing district size and school size may lead to higher and more equitably distributed student outcomes.

Bransford, J.W., Brown, A.L., & Cocking, R.R. (1999). How People Learn: Brain, Mind, Experience, and School . Washington, DC: National Research Council.

> This book uses research on brain structure and cognition to present a contemporary account of principles of learning. One chapter addresses the design of learning environments, calling into question many concepts and practices commonly used in schools.

Bryk, A. S., & Driscoll, M. E. (1988). The High School as Community: Contextual Influences and Consequences for Students and Teachers. National Center on Effective Secondary Schools, Madison, WI.

> Using data from High School and Beyond and the Administrator and Teacher Survey, the authors developed an index of communal school organization which can be used in analyses of high schools as social organizations.

Bryk, A. S., Lee, V. E., & Holland, P. (1993). Catholic Schools and the Common Good. Cambridge, MA: Harvard University Press.

Clark, R. W. (1994). The Development of Schools that Practice 'Reflaction'. In M. Fine (Ed.), Chartering Urban School Reform: Reflections on Public High Schools in the Midst of Change (pp. 31-46). New York: Teachers College Press.

> This chapter in the Fine book describes schools and the district learning to engage in a process of "reflaction" or "a combining of reflective thought and action (p. 42).

Small Schools (continued)

Clinchy, E. (2000). Creating New Schools : How Small Schools Are Changing American Education. New York: Teachers College Press.

> This collection focuses on the challenges faced by schools that are both new and small. Case studies from Boston and New York are included as well as chapters on the role of the state, local school district, and teacher's unions in school innovation and the issue of "scaling up" small schools.

Cook, A. (2000). The Transformation of One Large Urban High School: The Julia Richman Education Complex. In E. Clinchy (Ed.), Creating New Schools : How Small Schools Are Changing American Education (pp. 101-120). New York: Teachers College Press.

> This chapter in the Clinchy book recounts the experience of "downsizing" one large Manhattan high school into a campus of multiple, autonomous small schools.

Darling-Hammond, L., Ancess, J., McGregor, K., & Zuckerman, D. (1997). Inching Toward Systemic Reform: How The Coalition Campus Schools are Reinventing High School (Unpublished report): National Center for Restructuring Education, Schools, and Teaching.

Darling-Hammond, L., Ancess, J., McGregor, K., & Zuckerman, D. (2000). Inching Toward Reform in New York City: The Coalition Campus Schools Project. In E. Clinchy (Ed.) Creating New Schools : How Small Schools Are Changing American Education (pp. 163-180). New York: Teachers College Press.

> These two pieces grew out of research on the initial cohort of new schools formed through the Coalition Campus Schools Project, a collaborative effort of the Coalition of Essential Schools, the Center for Collaborative Education (CCE, the Coalition's New York City Affiliate) and the New York City Board of Education. The authors describe early school outcomes and emphasize the importance of change at the system or district level to support school-level reform efforts.

Fine, M. (Ed.). (1994). Chartering Urban School Reform: Reflections on Public High Schools in the Midst of Change. New York: Teachers College Press.

> This volume chronicles the attempt to restructure Philadelphia's large comprehensive high schools into smaller, more intimate learning communities, then called "charters." Contributors address a wide range of issues such as fostering school self-inquiry, an analysis of a Professional Development School in the making, and teacher- and student-eye perspectives on urban high school reform.

Fine, M, with W. Ayers. (1998) "What's so good about small schools?" In Fine, M., & J. Somerville, (Eds.) Small Schools, Big Imaginations: A Creative Look at Urban Public Schools. Chicago: Cross City Campaign for Urban School Reform:

Small Schools (continued)

Fine, M., & Somerville, J. I., Eds. (1998). Small Schools, Big Imaginations: A Creative Look at Urban Public Schools. Chicago: Cross City Campaign for Urban School Reform.

A product of the Cross City Campaign, this report "looks at small schools through the eyes of teachers, students, parents, administrators, union leaders, and researchers (p. 13)." It also includes a literature review, a list of "essential elements" of small schools, a portrait of a Philadelphia high school being restructured into smaller schools, and an early version of the report on school size and costs in New York (Stiefel, et al., 1998).

Gladden, M. (2000). Small Schools: What's Small? (Occasional paper 3.1). New York: Bank Street College of Education.

A helpful overview of research on small schools and their many configurations.

Gladden, R. (1998). The Small School Movement: A Review of the Literature. In M. Fine & J. I. Somerville (Eds.), Small Schools, Big Imaginations: A Creative Look at Urban Public Schools (pp. 113-137). Chicago: Cross City Campaign for Urban School Reform.

Gladden reviews over sixty journal articles, evaluations, and other papers on small schools, summarizing findings in the areas of school size, social environment, and student achievement. Also contains ten tables comparing particular findings (e.g., equity in student achievement) across several studies.

Klonsky, M. (1996). Small Schools: The Numbers Tell a Story. University of Illinios at Chicago Small Schools Workshop: Chicago.

A concise review of early research on small schools.

Lee, V. E. (2000) School Size and the Organization of Secondary Schools. In Hallinan, M. T. (Ed), Handbook of the Sociology of Education (pp. 327-344). New York: Kluwer Academic/Plenum.

In this chapter, Lee reviews research on school size (including her own studies) and suggests new directions for this research. Contains a section on methodological considerations relevant to research on school size.

Lee, V. E., Bryk, A. S., & Smith, J. B. (1993). The Organization of Effective Secondary Schools. In L. Darling-Hammond (Ed.), Review of Research in Education (Vol. 19). Washington, DC: American Educational Research Association.

An extensive review of literature, this chapter explores the influence of school organization on teacher outcomes (satisfaction, efficacy, and commitment) and student outcomes (engagement and achievement).

Small Schools (continued)

Lee, V. E., Smerdon, B. A., Alfeld-Liro, C., & Brown, S. L. (2000). Inside Large and Small High Schools: Curriculum and Social Relations. Educational Evaluation and Policy Analysis, 22(2), 147-171.

> Based on interviews with teachers, principals, guidance counselors, and students in nine very different public high schools (e.g., large and small, public and Catholic, varying degrees of urbanicity), the authors find that high school size can effect social relations and curricular offerings in both positive and detrimental ways.

Lee, V. E., & Smith, J. B. (1997). High School Size: Which Works Best and For Whom? Educational Evaluation and Policy Analysis, 19(3), 205-227.

> Based on an analysis of data from the National Educational Longitudinal Study, the authors suggest that the ideal high school enrolls between 600 and 900 students. They further demonstrate that "enrollment size has a stronger effect on learning in schools with lower-SES students and also in schools with high concentrations of minority students (p. 205)."

McLaughlin, M. W., & Talbert, J. (2001). Professional Communities and the Work of High School Teaching. Chicago: University of Chicago Press.

McMullan, B. J., Sipe, C. L., & Wolf, W. C. (1994). Charter and Student Achievement: Early Evidence from School Restructuring in Philadelphia (Evaluation). Philadelphia: Center for Assessment and Policy Development.

Meier, D. (1995). The Power of Their Ideas: Lessons for America from a Small School in Harlem. Boston: Beacon Press.

National Association of Secondary School Principals (NASSP). (1996). Breaking Ranks: Changing an American Institution . Reston, VA: NASSP, in partnership with the Carnegie Foundation for the Advancement of Teaching.

Oxley, D. (1994). Organizing Schools into Small Units: Alternatives to Homogeneous Grouping. Phi Delta Kappan, 75(7), 521-26.

> In this short piece, Oxley describes two restructured schools: a school for grades 5-10 in Germany organized into teams and a Philadelphia high school subdivided into houses. She presents reorganizing large schools into smaller units as a strategy for eliminating tracking and grouping practices that persistently produce inequitable student outcomes.

Oxley, D., & McCabe, J. G. (1990). Restructuring Neighborhood High Schools: The House Plan Solution (Evaluation). New York, N.Y: Public Education Association and Bank Street College of Education. (ED 326596)

Public Education Association. (1992). Small Schools' Operating Costs: Reversing Assumptions about Economies of Scale. Public Education Association: New York. (ED 375 218)

Intended to address the "feasibility of operating small schools" as the norm in New York, this report demonstrates that large schools evidence "dis-economies of scale" as well as lower student outcomes when compared to smaller schools (roughly 750-1200 for high schools). The report's authors also urge change at the local district and school board level to support the development of more small schools.

Powell, A. G. (1996). Lessons from Privilege : the American Prep School Tradition. Cambridge, MA.: Harvard University Press.

Demonstrates how elite schools have always relied on small school size and personalized attention to increase student achievement.

Powell, L. C. (2000). Small Schools and the Issue of Race (Occasional paper 3.4). New York: Bank Street College of Education.

Raywid, M. A. (1996). Taking Stock: The Movement To Create Mini-Schools, Schools-within-Schools, and Separate Small Schools. Urban Diversity Series No. 108: Center on Organization and Restructuring of Schools, Madison, WI. ERIC Clearinghouse on Urban Education, New York, N.Y. Available on the web at http://eric-web.tc.columbia.edu/monographs/uds108.

A literature review which describes different features and variations of small schools, this paper is informed by the author's study of small schools in New York, Philadelphia, and Chicago. Raywid concludes that a higher degree of autonomy may be correlated with greater student success in schools-within-schools and that "while downsizing is clearly no magic bullet, it can increase student participation, reduce dropouts, improve achievement, and enhance teacher efficacy (p. 51)."

Sherman, D. (2000). The Role of a Union in School-System Reform. In E. Clinchy (Ed.), Creating New Schools : How Small Schools Are Changing American Education (pp. 150-162). New York: Teachers College Press.

This chapter in the Clinchy book is written from the perspective of a UFT leader.

Stiefel, L., Iatarola, P., Fruchter, N., & Berne, R. (1998). The Effects of Student Body on School Costs and Performance in New York City High Schools . New York: Institute for Education and Social Policy, New York University. Available on the web at www.nyu.edu/iesp/publications/publications.html.

This study of New York high schools was one of the first to measure costs of schooling on a per-graduate basis as compared to prior analyses which typically examine economies of scale over the long run, excluding variables such as time-to-graduation.

Stiefel, L., Berne, R., Iatarola, P., & Fruchter, N. (2000). High School Size: Effects on Budgets and Performance in New York City. Educational Evaluation and Policy Analysis, 22(1), 27-39.

With the school as the unit of analysis, the authors examine the effect of school size on budget and student performance. Based on data from New York City, the researchers conclude that small academic high schools evidence per-student costs comparable to large comprehensives. Given replicated findings that small schools address equity gaps, the authors suggest that small high schools may be worth the investment.

Wasley, P., & Fine, M. (2000). Small Schools and the Issue of Scale (Occasional paper 3.2). New York: Bank Street College of Education.

A short paper that refutes many common assumptions that underlie arguments that small schools cannot be brought "up to scale."

Wasley, P. A., Fine, M., Gladden, M., Holland, N. E., King, S. P., Mosak, E., & Powell, L. C. (2000). Small Schools: Great Strides. New York: Bank Street College.

Based on an intensive two-year study of small schools in Chicago using qualitative and quantitative methodologies, these authors find a number of positive outcomes for students in small schools. These include improvements in student performance and school climate and increases in satisfaction among teachers, parents, and community members. They also include a section on "Answers, Cautions, and Recommendations," which offers real-world advice for anyone interested in supporting or expanding the number of small schools.

Zane, N. (1994). When Discipline Problems Recede: Democracy and Intimacy in Urban Charters. In M. Fine (Ed.), Chartering Urban School Reform: Reflections on Public High Schools in the Midst of Change (pp. 122-135). New York: Teachers College Press.

Applied Learning

Allen, L., Hogan, C. J., & Steinberg, A. (1998). Knowing and Doing: Connecting Learning & Work. Providence, RI: The Education Alliance LAB at Brown University.

Bodilly, S., Ramsey, K., Stasz, C., & Eden, R. (1993). Integrating Academic and Vocational Education: Lessons from Eight Early Innovators. Berkeley, CA: National Center for Research in Vocational Education.

Bottoms, G., & Mikos, P. (1995). Seven Most-Improved High Schools That Work Sites Raise Achievement in Reading, Mathematics, and Science . Atlanta, GA: Southern Regional Education Board-State Vocational Education Consortium.

In this report, Bottoms & Mikos examine the practice of seven High Schools That Work that made the most improvement in raising reading, math, and science achievement. The authors compare the practice of these seven schools to other HSTW sites finding that successful schools integrate vocational and academic education and establish high standards and a strong support system.

Bragg, D. D. (1998). How Students Assess Their School-to-Work Opportunities. Paper presented at the Annual Meeting of the Council for the Study of Community Colleges. Miami Beach, FL, April 24-25, 1998.

To assess the impact of school-to-work models, this study utilizes surveys and interviews with administrators, teachers, counselors, parents, and students at six sites in different states. They found that most participants planned to attend a two-year or four-year college. They also found that participating students made plans for their future, however, it was less certain whether they fully understood those plans.

Bragg, D. D., & et al. (1994). Tech Prep Implementation in the United States: Promising Trends and Lingering Challenges. National Center for Research in Vocational Education, Berkeley, CA.

Center on Education and Work (1999). Wisconsin Youth Apprenticeship: Another Road to Success...A Synthesis of Findings and Outcomes from Evaluation and Research Studies . Madison, WI.

Crain, R. L., Allen, A., Thaler, R., Sullivan, D., Zellman, G. L., Little, J. W., & Quigley, D. D. (1999). The Effects of Academic Career Magnet Education on High Schools and Their Graduates. National Center for Research in Vocational Education, Berkeley, CA.

Crain, et al. analyzed students records as well as data obtained from surveys and interviews in order to assess the impact of career magnet high school programs. They found both positive and negative effects. Graduates of career academies are better prepared for postsecondary opportunities and are less likely to engage in high-risk behaviors than non-participating students, however, career magnet programs also have a high dropout rate.

Dayton, C. (1997). California Partnership Academies: 1995-96 Evaluation Report. Nevada City, CA: Foothill Associates.

This report summarizes data from 42 of the 45 high schools participating in the state-funded California Partnership Academies. Data was collected concerning both program implementation and student outcomes. The data demonstrate that academy participation positively affects student attendance, credits earned, GPA, and postsecondary plans.

Dayton, C., & et al. (1992). The California Partnership Academies: Remembering the "Forgotten Half." Phi Delta Kappan, 73(7), 539-45.

Dayton, C., & Stern, D. (1990). Graduate Follow-Up Survey of the June 1988 Graduates of the California Partnership Academies. Policy Paper No. PP90-1-1 Policy Analysis for California Education, Berkeley, CA.

Flaxman, E., Guerrero, A., & Gretchen, D. (1997). Career Development Effects of Career Magnets versus Comprehensive Schools. National Center for Research in Vocational Education, Berkeley, CA.

Heebner, A., & et al. (1992). Career Magnets: Interviews with Students and Staff. National Center for Research in Vocational Education, Berkeley, CA.

Heebner, A. L. (1995). The Impact of Career Magnet High Schools: Experimental and Qualitative Evidence. Journal of Vocational Education Research, 20(2), 27-55.

Hershey, A. M., Silberberg, M. K., Haimson, J., Hudis, P., & Jackson, R. (1999). Expanding Options for Students: Report to Congress on the National Evaluation of School-to-Work Implementation : U.S. Department of Education.

Hughes, K. L., Bailey, T. R., & Mechur, M. J. (2001). School-to-Work: Making a Difference in Education. A Research Report to America. . New York, New York: Institute on Education and the Economy, Teachers College, Columbia University.

The authors of this report synthesize the findings from a wide array of applied learning evaluations. They found that these programs often improve student outcomes such as attendance, grades, and motivation. However, they note that evidence is lacking around the effects of these programs on standardized test scores. They also suggest that limited evidence exists concerning the effect of applied learning strategies on college enrollment and completion as well as labor market success.

Kemple, J. J., Poglinco, S. M., & Snipes, J. C. (1999). Career Academies: Building Career Awareness and Work-Based Learning Activities through Employer Partnerships. Manpower Demonstration Research Corp., New York, NY.

Kemple, J. J., & Snipes, J. C. (2000). Career Academies. Impacts on Students' Engagement and Performance in High School. Manpower Demonstration Research Corp., New York, NY.

This report is a part of MDRC's ongoing career academies evaluation. While earlier reports focused on implementation, this report concentrates on assessing the impact of career academy participation on student outcomes. Findings reveal that career academies have a positive effect on many student outcomes such as attendance and graduation rates. The report notes that career academy participation has no effect on standardized achievement test scores.

Lee, V. & Bryk, A. (1988). Curriculum Tracking as Mediating the Social Distribution of High School Achievement. Sociology of Education, 61(2), 78-94.

Linnehan, F. (1996). Measuring the Effectiveness of a Career Academy Program from an Employer's Perspective. Educational Evaluation and Policy Analysis, 18(1), 73-89.

Maxwell, N., & Rubin, V. (1997). The Relative Impact of a Career Academy Program on Post-Secondary Work and Education Skills in Urban, Public High Schools . Hayward, CA: Human Investment Research and Education Center.

Maxwell & Rubin examine the impact of career academies on postsecondary education and work skills with an urban, public high school context. Through an analysis of NELS data, Maxwell & Rubin conclude that career academy participation increases the probability that students will attend college. Furthermore, they suggest that all students may not benefit equally from career academy participation.

Oakes, J. & Guiton, G. (1995). Matchmaking: The Dynamics of High School Tracking Decisions. American Educational Research Journal, 32(1), 3-33.

Snyder, P. & McMullan, B. (1987). Allies in Education: A Profile of Philadelphia High School Academies. Philadelphia: Public/Private Ventures.

Visher, M. G., Teitelbaum, P., & Emanuel, D. (1999). Key High School Reform Strategies: An Overview of Research Findings. New American High Schools: High Schools at the Leading Edge of Reform. MPR Associates, Berkeley, CA.

This report outlines ten strategies that affect student outcomes. Among these strategies are structuring learning around careers and linking students' out-of-school experiences to classroom learning. The authors present a summary of empirical evidence supporting the strategies.

Conant, J. B. (1959). The American High School Today. (First ed.). New York: McGraw-Hill.

Conant's report from an NASSP study examining the American secondary schools where he calls for high school consolidation and the creation of three tracks (academic, general education, and vocational education) within comprehensive high schools.

Cuban, L., & Usdan, M. (2001, April 22). A Noneducator Pulls of the Impossible: Urban School Reform. Los Angeles Times.

A brief article on San Diego City Schools under the leadership of Superintendent Alan Bersin and Chancellor of Instruction Anthony Alvarado.

Darling-Hammond, L., & McLaughlin, M. W. (1999). Investing in Teaching as a Learning Profession: Policy Problems and Prospects. In L. Darling-Hammond & G. Sykes (Eds.), Teaching as the Learning Profession : Handbook of Policy and Practice (1st ed., pp. 376-411). San Francisco, CA: Jossey-Bass.

Darling-Hammond, L., & Sykes, G. (1999). Teaching as the Learning Profession : Handbook of Policy and Practice. (1st ed.). San Francisco, CA.: Jossey-Bass.

Elmore, R. F., & Burney, D. (1996). Investing in Teacher Learning: Staff Development and Instructional Improvement in Community School District #2, New York City: National Commission on Teaching & America's Future, New York, NY. Consortium for Policy Research in Education, Philadelphia, PA.

Elmore, R. F., & Burney, D. (1997). School Variation and Systemic Instructional Improvement in Community School District #2, New York City . Pittsburgh: Learning Research and Development Center, High Performance Learning Communities Project.

Elmore, R. F., & Burney, D. (1998). Continuous Improvement in Community School District #2, New York City . Pittsburgh: Learning Research and Development Center, High Performance Learning Communities Project.

Elmore, R. F., & Burney, D. (1999). Investing in Teacher Learning: Staff Development and Instructional Improvement. In L. Darling-Hammond & G. Sykes (Eds.), Teaching as the Learning Profession (pp. 263-291). San Francisco: Jossey-Bass.

Elmore, R. F., & Burney, D. (2000). Leadership and Learning: Principal Recruitment, Induction, and Instructional Leadership in Community School District #2, New York City . Pittsburgh: Learning Research and Development Center, High Performance Learning Communities Project.

Ferguson, R. F., & Ladd, H. F. (1996). How and Why Money Matters: An Analysis of Alabama Schools. In H. F. Ladd (Ed.), Holding Schools Accountable : Performance-Based Reform in Education (pp. 265-298). Washington, D.C.: Brookings Institution.

Greenwald, R., Hedges, L. V., & Laine, R. D. (1996). The Effect of School Resources on Student Achievement. Review of Educational Research, 66(3), 361-396.

Lucas, S. R. (1999). Tracking Inequality : Stratification and Mobility in American High Schools. New York: Teachers College Press.

> This book provides an extensive quantitative analysis of in-school stratification and concludes that while formal tracking systems have been dismantled, within-school inequities in access and outcomes persist, disproportionately affecting lower-income students.

McLaughlin, M. W., & Talbert, J. (2001). Professional Communities and the Work of High School Teaching. Chicago: University of Chicago Press.

McLaughlin, M. W., & Talbert, J. E. (1993). Contexts That Matter for Teaching and Learning . Stanford, CA: Center for Research on the Context of Secondary School Teaching, Stanford University.

Oakes, J. (1985). Keeping Track: How Schools Structure Inequality. New Haven: Yale University Press.

> A groundbreaking study of tracking in secondary schools, which grew out of A Study of Schooling. Provides vivid examples of how student and teacher experiences differ across tracks and concludes with implications of these structures for society as a whole.

Oakes, J., & Wells, A. S. (1999). The Comprehensive High School, Detracking, and the Persistence of Social Stratification. http://pages.nyu.edu/~fmh1/oakeswells.htm [2001, April 14].

> A working paper that addresses the legacy of James Bryant Conant's recommendations for high schools, comparing his notions with current national economic and social trends. Also discusses the challenge of detracking.

Porter, A. C. (1998). The Effects of Upgrading Policies on High School Mathematics and Science. In D. Ravitch (Ed.), Brookings Papers on Education Policy: 1998 (pp. 123-164). Washington, D.C.: Brookings Institution Press.

> Using data from two prior studies, Porter analyzed the effects of two distinct policies: one to increase the high school graduation credit requirement for math and science, and the other, the provision of a "transition" math class to enable more students to take college preparatory math courses. Using qualitative and quantitative methodologies, Porter found positive effects of both programs. He also views the policies using his framework of policy strength (prescriptiveness, consistency, power, and authority).

Siskin, L. S., & Little, J. W. (1995). The Subjects in Question : Departmental Organization and the High School. New York: Teachers College Press.

Sizer, T. R. (1984). Horace's Compromise : The Dilemma of the American High School. Boston: Houghton Mifflin Co.

Systemic Research, Inc. (April, 2001). Academic Excellence for All Urban Students: Their Accomplishment in Science and Mathematics. http://systemic.xohost.com/usi/Booklet.pdf

An evaluation of the NSF's Urban Systemic Initiative at seven years. Finds significant inprovement in mathematics and science achievement among K-12 students in major urban school districts.

Ware, M., Richardson, L., & Kim, J. J. (2000). How Reform Works: An Evaluative Study of National Science Foundation's Urban Systemic Initiatives. Monograph No. 1 (ED 441 046). Norwood, MA: Systemic Research, Inc.

The first deliverable of a three-year evaluation of the NSF's Urban Systemic Initiative, this paper reviews literature on science and math curricula as well as urban school reform. The researchers identify variables relevant to a study of student achievement and indicate that there is little agreement on the relation between policy, practice, and student performance in initiatives such as the NSFs.

Wells, A. S., & Serna, I. (1996). The Politics of Culture: Understanding Local Political Resistance to Detracking in Racially Mixed Schools. Harvard Educational Review, 66(1), 93-118.

Based on their three-year study of detracking in ten racially and socioeconomically mixed schools, the authors describe several of the considerable hurdles to this reform strategy.

Youth Development

Benson, P. L., & Saito, R. N. (2000). The Scientific Foundations of Youth Development, Youth Development: Issues, Challenges, and Directions.

Catalano, et al. (1998). Positive Youth Development in the United States: Research Findings on Evaluations of Positive Youth Development Programs : U.S. Department of Health and Human Services. Office of the Assistant Secretary for Planning and Evaluation and National Institute for Child Health and Human Development.

> This US Department of Health and Human Services report analyzes the effects of 77 youth development programs. Several of these programs involved adolescents and/or high schools. The study found that many youth development programs positively affect student outcomes.

Center for Research on the Context of Teaching (2000). Assessing Results: Bay Area School Reform Collaborative - Year 4. Stanford, CA: Stanford University.

Connell, J. P., Alberti, G. M., & Smith, T. J. (2000). Youth Development in Community Settings: Challenges to Our Field and Our Approach. In N. Jaffe (Ed.), Youth Development: Issues, Challenges, and Directions.

Costello, J., Toles, M., Spielberger, J., & Wynn, J. (2000). History, Ideology and Structure Shape the Organizations that Shape Youth, Youth Development: Issues, Challenges, and Directions (pp. 185-231). Philadelphia: Public/Private Ventures.

Fielding, M. (2001). Student as Radical Agents of Change. Journal of Educational Change, 2(1).

The Ford Foundation and National Youth Foundations. Beacons: A Union of Youth and Community Development. Case Study Review.

Gary, W. (2000). The Policy Climate for Early Adolescent Initiatives. In N. Jaffe (Ed.), Youth Development: Issues, Challenges, and Directions . Philadelphia, PA: Public/Private Ventures.

Jaffe, Natalie, Ed. (2000). Youth Development: Issues, Challenges, and Directions. Philadelphia: Public/Private Ventures.

> This book provides a comprehensive summary of the history and critical issues facing the youth development field. Comprised of nine separate essays, the volume is organized around three themes: contextual issues, evidence, and institutional challenges.

Kirby, D. (1997). No Easy Answers: Research Findings on Programs to Reduce Teenage Pregnancy Washington DC: The National Campaign to Prevent Teenage Pregnancy.

Leffert, N., et al. (1996). Making the Case: Measuring the Impact of Youth Development Programs Minneapolis: Search Institute.

Leffert's report provides an overview of relevant literature concerning youth development and positive youth outcomes. She reviews various youth development program evaluations and concludes that, although the evidence is still preliminary, many youth development programs positively influence self-esteem and other youth outcomes.

McLaughlin, M. (2000). Community Counts: How Youth Organizations Matter for Youth Development . Washington DC: Public Education Network.

McLaughlin's report examines the role that Community Based Organizations (CBO's) play in the lives of youth. Based on over a decade of related research, McLaughlin demonstrates that CBO's can serve a critical role in helping youth build self-confidence, optimism, and a sense of civic responsibility.

Mitra, D. (Forthcoming). Makin' It Real: Involving Youth in School Reform.

Pittman, K., Irby, M., & Ferber, T. (2000). Unfinished Business: Further Reflections on a Decade of Promoting Youth Development . Battle Creek, Michigan: International Youth Foundation.

Pittman, K. J., & Cahill, M. (1992). Pushing the Boundaries of Education: The Implications of a Youth Development Approach to Education Policies, Structures and Collaborations. Academy for Educational Development, Washington, DC. Center for Youth Development and Policy Research.

Pittman, K. J., & Wright, M. (1991). Bridging the Gap: A Rationale for Enhancing the Role of Community Organizations in Promoting Youth Development. Academy for Educational Development, Washington DC. Center for Youth Development and Policy Research.

In this article, Pittman & Wright provide a framework for thinking about youth development and youth development supports. They discuss both the definition of and the theory underlying youth development as well as the role the voluntary sector could play in this field. Perhaps most notably, Pittman & Wright established the major competencies and basic needs of youth in this article.

Resnick, et al. (1997). Protecting Adolescents from Harm: Findings from the National Longitudinal Study on Adolescent Health. Journal of the American Medical Association, 278, 823-832.

Task Force on Education of Young Adolescents (1989). Turning Points: Preparing American Youth for the 21st Century . New York: Carnegie Council on Youth Development.

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